

Canada. Dept. of Manpower  
and Immigration  
Career outlook, univer-  
sity graduates  
1967/68









# Career outlook

***University  
Graduates  
1967-1968***

***Department  
of  
Manpower  
and  
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# **CAREER OUTLOOK**

## **UNIVERSITY GRADUATES**

**1967-1968**

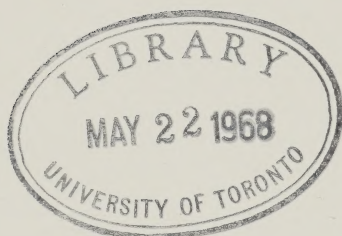


Manpower Information and Analysis Branch  
**PROGRAM DEVELOPMENT SERVICE**  
Department of Manpower and Immigration  
Ottawa

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Deputy Minister





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This booklet is intended for the use of anyone interested in the Canadian labour market as it relates to new university graduates. It is anticipated that the booklet's main audience will be undergraduate, graduating, and graduate students at universities and colleges, high school students, vocational counsellors, teachers, professors, and employers of university graduates. The booklet is available from Canada Manpower Centres and from the Professional and Technical Occupations Section of the Department of Manpower and Immigration in Ottawa, as is a companion *Career Outlook* booklet relating to graduates of technological institutes.

Following the introductory pages which describe current developments at universities and colleges in general, career opportunities in about sixty particular fields are outlined. An appendix contains starting salary figures and the estimated graduations of Canadian universities by discipline of both undergraduate and graduate students.

In the 1966-67 term, Canadian universities and colleges again experienced a startling increase in both the number of students enrolled and the number of graduates produced. Compared with a full-time enrolment of 206,000 students in 1965-66, the 1966-67 figure was 232,000, an increase of 12.7 per cent. This figure included 211,000 undergraduate and 21,000 graduate students, in addition to which there were about 70,000 part-time students enrolled. A similar increase in the next term would produce a full-time enrolment of over 260,000 in 1967-68.

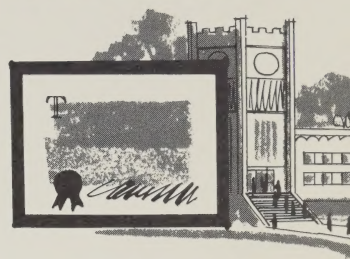
Tables Two and Three in the Appendix estimate the number of graduates per discipline in 1967 and 1968. The number graduating with first degrees in 1966 was about 38,000; in 1967 it increased to about 44,000; and the 1968 figure is expected to be in the nature of 50,000. The number obtaining graduate degrees is rising even more rapidly—from about 5,400 in 1966 to 6,500 in 1967 and an expected 7,800 in 1968.

Both Simon Fraser University and the University of Guelph report the successful operation of their trimester systems. Under this system, students may enrol for one, two, or three terms per year during each of which full courses are offered. The Director of University Affairs at Simon Fraser suggests that this enables each student to plan his program in a fashion that corresponds as closely as possible to his personal needs.

The most obvious advantage of the trimester system is that students are able either to accelerate or prolong their university studies. While the majority of students still prefer to leave the campus during the summer term, those who study then have the advantage of smaller classes and of developing closer contact with the faculty. Students who take a very active part in campus affairs during one term are able to take a reduced course load then and compensate for this in the next term or terms. At Guelph, secondary school students are admitted in April prior to the end of the regular school year without writing external matriculation examinations. They can complete a full term by the following September.

A second advantage relates to local employment conditions. As university enrolments rise, it is becoming increasingly difficult to absorb all undergraduates into the labour market during the summer months. With a trimester system, a portion of the student

## INTRODUCTION



## Graduations and Enrolments

## Year-Round Education

population remains at university during the summer, easing the pressure on the labour market. This group or others may then prefer to work during the fall or winter terms and find better employment opportunities at that time. At Simon Fraser, for example, Commerce students are encouraged to attend university during the summer and to work from January to April when the pressure of tax work in accounting firms provides a much better job market.

The Registrar at Guelph points out that that university is unique in operating some programs on a two-semester system, others (Arts and Science) on a trimester system, and some programs on both systems (Agriculture and Household Science). In addition to the two universities on a trimester basis, of course, almost all universities offer summer courses and graduate work on a year-round basis. The University of Saskatchewan offers a session between the end of the spring term and the start of the regular summer session. Mount Royal Junior College in Calgary also operates on a trimester system.

## **Co-operative Programmes**

Related to the concept of year-round education is that of the co-operative program established by the universities of Waterloo and Sherbrooke. Students enrolled in such programs at both universities alternate between eight four-month academic sessions and six four-month work terms. Waterloo offers co-operative programs in engineering, applied physics, applied chemistry, physical education, and computer and actuarial science. At Sherbrooke, such programs are offered in civil, electrical, and mechanical engineering and in business administration.

The co-operative program is based on the principle that an academic program combined with integrated work experience in alternating terms is desirable for effective professional preparation. Besides this beneficial link between work and study which exists rather rarely in the usual obtaining of summer employment, the planning of the co-operative program establishes a useful relationship between industry and university. Since the class in each co-operative program is divided into two parts, university facilities are used on a year-round basis and at any time by only half as many students as would otherwise be the case.

## **Junior Colleges**

One of the most significant developments taking place in the realm of post-secondary education in Canada is the expansion of the junior college system. The basic purpose of all these colleges, according to the Principal of Mount Royal Junior College, is to provide some education beyond the secondary school level, but not to the degree-granting standard. The majority of the programs offered in junior colleges are two years in length and the graduates are awarded diplomas indicating the area of their training. This expansion is particularly evident in Ontario, British Columbia, Alberta, and Quebec, although the function of these colleges differs somewhat from one province to another.

In Ontario, 18 new Colleges of Applied Arts and Technology have been established, absorbing in five cases the previously existing institutes of technology in the province. These colleges are offering diploma courses in a wide variety of subjects, but are not designed, at least for the present, to provide transfer courses to university.



In British Columbia, Vancouver City College and Selkirk College at Castlegar have recently been established, and there are plans for additional junior colleges. These institutions give courses of up to two years in length leading to diplomas, some of which may be transferable to universities, and others of which prepare the graduate for immediate employment.

Alberta has public junior colleges in Medicine Hat, Red Deer, Grande Prairie, and Calgary (Mount Royal). The former junior college at Lethbridge has now become the University of Lethbridge and will offer full degree courses. The others offer the first few years of university courses as well as diploma courses in other subjects.

Quebec is planning the establishment of about thirty new colleges called institutes, which are intended to bridge the gap between high school and university. They will offer courses equivalent to Grades 12 and 13 for both those going on to university and those who will seek employment after two years at the institute.

As pointed out earlier, total enrolments in graduate studies in Canadian universities are increasing at the rapid rate of over 4,000 per year to a total of over 21,000 students in 1966-67. Some individual figures showing a definite increase are McMaster, 19 per cent; New Brunswick, 20 per cent; and Carleton, 30 per cent. It is quite evident that as is asserted in the report on graduate studies in Ontario prepared by Dr. J. W. T. Spinks, President of the University of Saskatchewan, there is at the university an increased emphasis on graduate work and research, an increased emphasis on training people to take their place in research organizations of all kinds, and an increased emphasis on research for its own sake.

Despite this great increase in graduate work, there is no danger of overproduction in the area of graduate education generally. According to the calculations of the Spinks report, even if all prospective Ph.D.'s went into university teaching, supply would still fall short of demand. As it is, a considerable number will enter the service of industry and government where their services are also in great demand. The Dean of Graduate Studies at the University of British Columbia estimates that less than 20 per cent of the students capable of becoming Ph.D.'s enter the graduate school.

In a number of universities, however, the large increases in graduate enrolments have put a strain on research facilities including library resources and on funds available to assist such students. Since graduate work is usually a year-round endeavour, much individual financial assistance is required.

Probably the most thorough study of graduate studies recently is the Spinks report on the Development of Graduate Programmes in Ontario Universities. It recommends a much closer liaison among the province's graduate schools in order to develop excellence and to economize resources, and action to bring about a reasonable allocation of the more esoteric disciplines among the universities. As far as library resources are concerned, the report recommends the establishment of a provincial universities' library which would service users from the entire province on a co-operative and collaborative basis.

## Graduate Studies

The Canada Council has also published a study recently in connection with graduate work. It finds that more doctoral students are pursuing their studies in Canada. Thirty per cent of the 1966-67 award winners studied at Canadian universities, and it is expected that 35 per cent will do so in 1967-68.

Of the Canada Council award winners now employed, 97 per cent of those who studied in Canada work here, 77 per cent of those who studied in the United States have returned to Canada for employment, and 90 per cent of those who studied elsewhere have returned. The combined repatriation rate was 80 per cent. The report also notes that 92 per cent of award winners who took a doctorate degree have entered upon university teaching careers.

The area of post-doctoral research is expanding in Canada although until now it has been done almost exclusively in the science and engineering fields. Many universities are increasing or introducing post-doctoral fellowship programs. In 1967, for example, the University of New Brunswick is offering post-doctoral fellowships for the first time.

Some post-doctoral fellows are professors on sabbatical leave from other universities who in some instances receive financial assistance from their own university. Others are newly graduated Ph.D.'s. In either case they may do a limited amount of teaching but are primarily engaged in further research.

Additional remarks about graduate studies in particular disciplines are made in most of the sections which follow.

## **Acknowledgements**

The assistance of a very large number of contributors in the preparation of this booklet is gratefully acknowledged. These include nearly 200 university deans and department heads in particular, as well as officials of a number of professional associations. It is impossible to list all these contributors here but wherever possible, reference is made in the text to those who assisted in the writing of each section.

In addition, university administrators and placement officers, the Pay Research Bureau, the Engineering Institute of Canada, the Education Division of the Dominion Bureau of Statistics, and the Fédération des Collèges classiques have contributed to the surveys upon which the statistical information in the booklet is based.

The Tertiary Education Unit of the Professional and Technical Occupations Section, in its efforts to keep this booklet up to date, welcomes contributions for the next edition including new information on the disciplines covered and suggestions for additional sections.



The demand for degree graduates in agriculture is strong, and the employment outlook for such graduates is very bright. According to the Agricultural Institute of Canada, the number of students enrolled in the Bachelor's degree program in agriculture is far short of the number required to meet the needs in this field—about half as numerous as employment opportunities. This is true despite an increase in the size of enrolments at both the undergraduate and graduate levels in agricultural science. In fact, the Dean of the Faculty of Agriculture at the University of Alberta notes that there are today more undergraduate and first-year students in faculties of agriculture in Canada than at any time during the last 15 years.

Opportunities for agriculture graduates exist in a wide variety of fields. The greatest demand is in the specialized industries serving agriculture—agribusiness. Graduates may be employed in the processing, manufacture, marketing, or sale of food, grain, feed, seed, pesticides, or fertilizer, in the manufacture and sale of farm implements, and in private consulting services and in banks. Federal and provincial governments require large numbers of agriculture graduates for work in extension services, administration, and research. Universities and agricultural colleges also require graduates for teaching and extension services as well as research in such areas as plant and animal breeding, insect and disease control, food processing, soil conservation and land use, and wildlife and water management. A number of graduates find employment in the communications field with farm publications, radio and television, agribusiness companies, government information services, and in agricultural advertising. Some choose secondary school teaching as a career. There is also a growing need for farm managers with a university degree in agriculture. The Dean of the Ontario Agricultural College points out that less than 5 per cent of the degree graduates return to farming.

Starting salaries for agriculture graduates have been rising rapidly in the last few years to about \$540 per month for 1967 graduates. According to the Head of the Department of Agricultural Economics at the University of Manitoba, there is an acute shortage of graduates in that field where starting salaries range from \$540 to \$625.

Seven Canadian universities offer a Bachelor's program in agriculture: Alberta, British Columbia, Guelph, Laval, Manitoba, McGill (Macdonald College), and Saskatchewan. The Bachelor's program is of four or five years' duration depending on the university and the degree of specialization. It is offered on the trimester system at Guelph and the first two years may be taken at the Nova Scotia Agricultural College at Truro. Over 500 graduated with a Bachelor's degree in agriculture in 1967.

The university curriculum in agriculture puts a heavy emphasis on basic science courses such as chemistry, physics, biology, botany, zoology, genetics, and microbiology, and students lacking an aptitude for or an interest in the sciences are not advised to enter faculties of agriculture. A number of specializations are available in the last years of the Bachelor's course including agricultural economics, agricultural engineering, plant, animal, poultry, soil or dairy science, entomology, horticulture, resource management, and microbiology. The University of Guelph and Laval University offer a special Bachelor's program in agricultural

engineering which gives training in such areas as mechanical and power engineering.

The Dean of the Ontario Agricultural College at Guelph notes a definite trend for a larger proportion of graduates to continue to graduate studies, about one third of the total. All seven of the universities mentioned offer graduate courses leading to the M.Sc. and Ph.D. degrees.

## ARCHITECTURE

Canada today offers very good opportunities for young men and women in the field of architecture. There is at present a great demand for the services of architects that has been created by the rapid expansion of industry and commerce combined with the rapid growth of urban areas.

The Royal Architectural Institute of Canada reported 2,607 architects registered with provincial associations in 1966. For comparison, the number of architects in the United States in 1966 was 17,925.

The Bachelor of Architecture degree is awarded at seven Canadian institutions—the universities of British Columbia, Manitoba, and Toronto; McGill University; Nova Scotia Technical College; École d'Architecture, Université Laval, and L'École d'Architecture, Université de Montréal. An eighth school is to be established at the University of Waterloo in 1968 and at the same time Carleton University plans to establish an architecture program in its engineering faculty.

The architecture courses are either five or six years in length following matriculation. The seven schools produce about 150 B. Arch. graduates a year. With the establishment of a Master's program in 1967 at Laval, all the established schools except Nova Scotia Technical College offer Master's courses in architecture.

The work of the architect may range from the design of new towns to buildings or groups of buildings of every size and for every purpose. Some architects specialize in related fields such as urban and regional planning, or urban design. New technologies in building methods and materials have given rise to increasing numbers of architects who choose to specialize in various aspects of building science—advanced structures, acoustics, and specialized building design. This diversity of work stems from the basic education and offers wide scope for the exercise of various aptitudes.

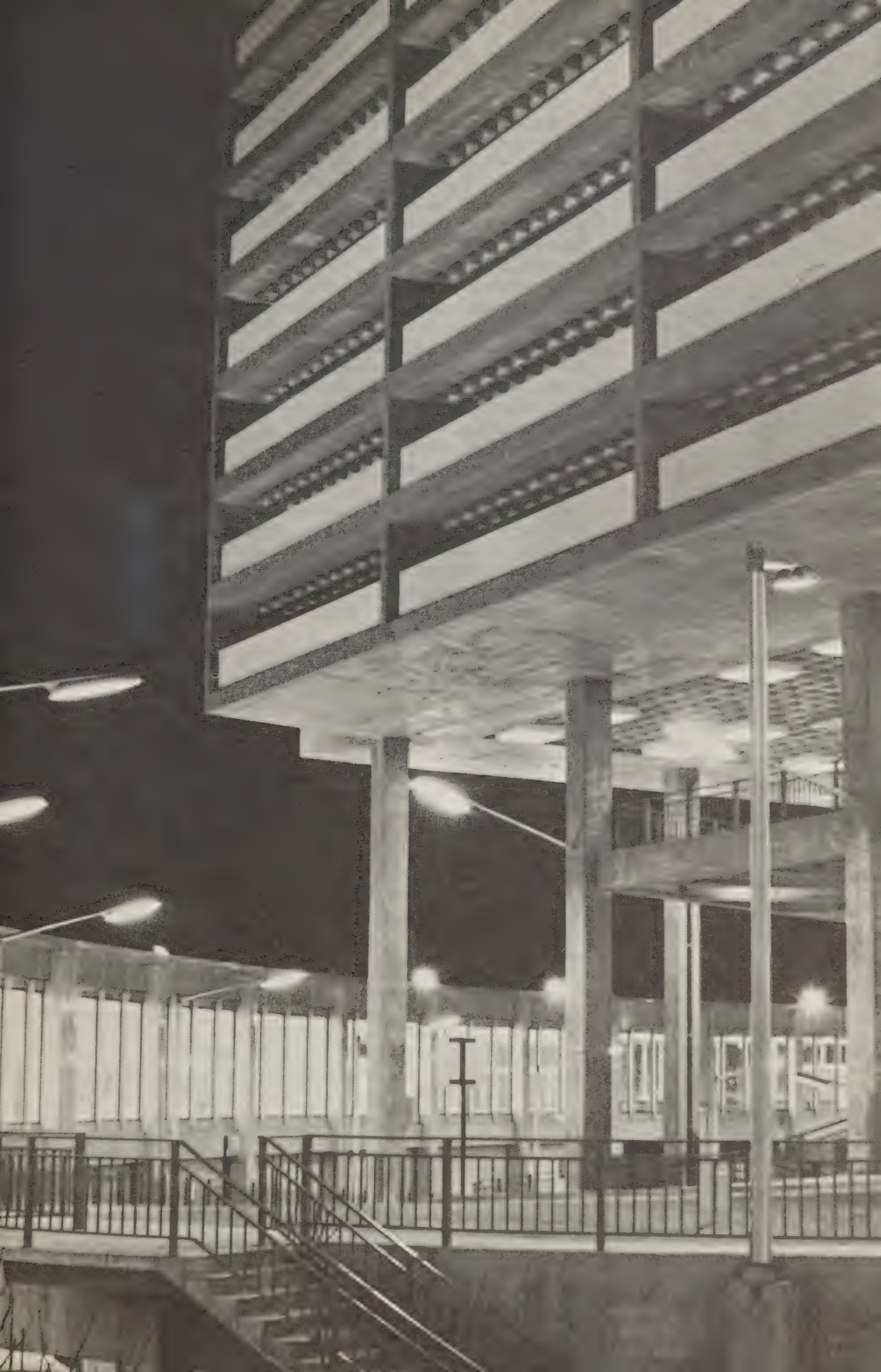
Generally speaking architecture graduates may enter the profession after two or three year's employment with an established architectural office. Good opportunities for architecture graduates exist in government departments, research agencies, planning agencies, and industrial and structural organizations. In fact, according to the Dean of the Faculty of Architecture at the University of Toronto, the opportunities for professional practice and research in the broad field of environmental design are challenging and unlimited.

The starting salaries for graduate architects are good and indicate excellent chances for rapid improvement.

## Landscape Architecture

Landscape architecture is a profession concerned with the planning and design of urban and rural lands for a variety of purposes including commercial, industrial, institutional, residential trans-





portation, and recreation. Outdoor work is involved in the surveying and land plotting necessary before detailed area planning can be done. Supervising the work of contractors also is largely an outdoor phase, as is the need for onsite study of watersheds, ground formations, soils, plants and wildlife, roads and urban condition, and other features. Such a study is often required before a satisfactory plan can be made for a development whether it be a sub-division, a park, or a highway.

At the present time, two universities—Guelph and Toronto—offer full-time undergraduate courses in landscape architecture. The course of study at both universities is four years in length, leading to the degree of Bachelor of Landscape Architecture. As well, the University of Manitoba has initiated a combined course in environmental studies for architects and landscape architects, after which a two-year curriculum in landscape architecture is offered leading to the B.L.A. degree. At the Master's level, Guelph's School of Landscape Architecture offers the M.Sc. degree in resources development with specialization in regional landscape planning and recreation.

The Department of Landscape Architecture at the University of Toronto reports that, although some of Canada's practising landscape architects are self-employed, employment opportunities are increasing rapidly as towns, cities, rural areas, and government departments recognize the expanding need to plan well. The supply of professionally-trained people in the field is not able to meet the growing demand.

The average starting salary for the beginning landscape architect is in the range of \$5,500 to \$6,500 yearly.

## **ARTS AND SCIENCE**

### **(Pass and General)**

Nearly 18,000 students graduated in general or pass arts and science patterns in 1967, about 14,200 in arts and 4,600 in science. This combined figure is expected to rise to about 21,800 in 1968.

The first of two broad categories of graduates in the general pattern includes those whose formal education will end upon graduation. These students are less interested in specialized study than in contact with a relatively wide range of subjects. This type of graduate is in demand for a wide variety of occupations in government, business, and in the manufacturing and retailing industries. Many are employed as junior executives to be trained for later promotion to executive positions. Others, such as pass science graduates, are hired as sales representatives for chemical and pharmaceutical firms.

Most universities have adopted the concept of a strong major in a particular discipline even in the general pattern. One-half or more of the student's subjects may be in one discipline giving him a comprehensive knowledge of this field just short of that of the honours graduate. This puts the student in a position of being qualified with a pass degree to occupy positions requiring specialized knowledge. Since in many cases the bulk of the honours graduates go on to graduate study, students with strong majors have been selected for positions which honours graduates previously filled. Starting salaries for 1967 arts and science graduates were about \$470.

The other category of pass arts and science graduates comprises those who go on after graduation to various kinds of specialized training. This includes graduate work in the subject in which the



student majored at the undergraduate level with a Master's degree usually requiring two additional years of study. It also includes professional training in teaching, theology, law, social work, library science, medicine, or dentistry, many of which require a general arts or science degree.

Thus the arts or science graduate has many opportunities available to him whether he seeks employment upon graduation or decides to undertake further study.

Audiology and speech therapy are two complementary sciences and, in Canada, are taught together so that the graduate may elect to practise in either field and will understand the duties and problems of both.

Speech therapy is defined as the evaluation and re-education of those suffering from communication disorders which affect comprehension and expression of language, while audiology is the study of hearing and is chiefly concerned with different methods for testing hearing and the re-education of the person with a hearing loss. The work of the speech pathologist and the audiologist includes the diagnosis and treatment of all types of disorders of speech, voice, language, and the testing of hearing and instruction in the use of hearing aids.

The Director of the School of Human Communication Disorders at the Royal Victoria Hospital reports that because this field is so new, the demand for graduates is particularly high in most parts of Canada.

Courses of study are provided by McGill University and the universities of Montreal and Toronto. All three institutions offer training consisting of two academic years, while McGill and Montreal prescribe clinical experience in hospitals, rehabilitation centres, or schools. Applicants must possess a B.A. degree or the equivalent before commencing training, and the University of Montreal requires a general knowledge of the French language. The universities differ only in the degree or diploma awarded following completion of the prescribed course of study: Montreal awards an M.A.; McGill either an M.Sc. or an M.Sc. (appl.), and Toronto a diploma in speech pathology and audiology. The Master's degree or a comparable graduate diploma is required for professional practice as a speech therapist or audiologist in only some parts of Canada and the United States, in particular Quebec.

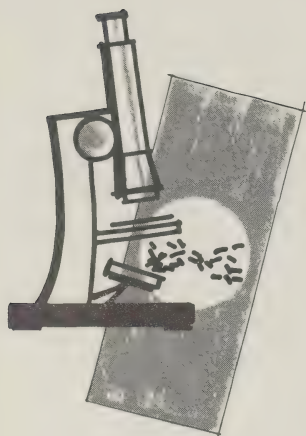
Opportunities for advanced training are available at institutions in the United States and England.

Speech pathologists generally work in association with other specialists in medical, psychological, and educational fields due to the complex nature of many speech and hearing problems. They are employed in hospitals, rehabilitation centres, clinics, with mobile provincial diagnostic units, and in special schools for the handicapped or deaf, as well as in the regular school system. Patients range in age from the very young to the aged. Some enter private practice and some lecture or carry out research in university departments of speech and hearing.

The growing awareness of the needs of patients has led to an expansion of treatment facilities, and a number of provincial governments offer assistance to those wishing to pursue studies in the field of audiology and speech therapy.

## **AUDIOLOGY AND SPEECH THERAPY**

## BIOLOGICAL SCIENCES



At the present time there is an explosion in our knowledge of fundamental biology, according to the Head of the Biological Sciences Division of the University of Manitoba. More and more people are being attracted to study in such areas as biochemistry and biophysics because there is beginning to be discerned a basic biochemical-biophysical pattern common to all living structures. There are increasing opportunities for young graduates to carve out careers for themselves in these two branches of the biological sciences.

As food production and the health of the population are of prime importance, there is a growing emphasis on research and development in other branches of biology, including botany, zoology, genetics, and marine biology. Microbiology is becoming a popular discipline that is being offered by more and more universities. Another branch growing in importance is ecology, the basis for studies of the human impact on the environment.

Employment opportunities for graduates may be considered at two levels: graduates in general courses and graduates in the honours biological science courses. Employment opportunities for the former are excellent and in a wide variety of fields. Examples of these fields are in quality control programs of the pharmaceutical industry; the expanding food processing industry; the Food and Drug Directorate and other directorates of the federal Department of Health and Welfare; in agricultural research and control stations; in fisheries surveys and research stations, and in Northern Affairs. There is also an increasing demand for these graduates in departments of agriculture, health, lands and forests, and other control and research stations of provincial governments.

Honours graduates in the biological sciences are encouraged to enter the more academic employment opportunities or to proceed to higher degrees. There is a growing demand for biological science teachers in secondary schools. As well, there is a strong need for biological scientists in universities, in research institutes, and in federal and provincial departments engaged in research and development. Even more important, the large number of new universities, the increasing enrolment in universities, and the rapidly expanding health sciences have brought about an urgent need for biological science graduates possessing the M.Sc. or preferably the Ph.D. degree, for professional as well as research positions.

Canadian universities currently graduate about 400 honours students in the various biological sciences per year; about 435 at the Master's level and about 175 Ph.D.'s. Average salaries for honours graduates in 1967 were in the \$520-565 range which represents a considerable increase over previous years.

## CHEMISTRY

Canada's expanding economy is calling for an ever-increasing supply of scientists at the Bachelor's, Master's, and Ph.D. levels. Because chemistry is one of the basic sciences, graduate chemists are finding many opportunities for careers, not only in the chemical profession, but in many other areas. The Chairman of the Department of Chemistry at the University of Toronto indicates that a number of graduate chemists are going into biochemistry, geology, metallurgy, and other inter-disciplinary areas in which a sound background of chemistry is advantageous.





Bachelor graduates in honours chemistry are in great demand for industry and for secondary school teaching, but the supply is very limited because the majority go on to graduate work. In fact, according to the Department of Chemistry at the University of Alberta, in Canada the number of Ph.D. graduates in chemistry is about the same as the number of graduates with the B.Sc. in honours chemistry. This is due largely to the fact that, as well as our own graduates continuing to the graduate level, B.Sc. graduates from other countries recognize that Canada has many excellent chemistry departments in its universities and wish to study with the modern facilities available here.

Bachelors at the pass or general level, who have taken courses in chemistry, as well as in mathematics and the other basic sciences, are being employed in increasing numbers by industry. Many of these find careers in production, technical sales, and in control laboratories. Other careers available to the pass or general Bachelor graduate are in library and editorial work of a technical nature, high school teaching, and as research assistants and technicians in hospitals and in industrial and government laboratories. A number take a make-up year to reach the honours level and then proceed into graduate work.

Persons holding the Master's degree and, in particular, the Ph.D. degree in chemistry are in great demand by industrial and government laboratories. The growth and sophistication of modern technology has opened up many new positions for the Ph.D. in chemistry in recent years in such industrial areas as pharmaceutical chemistry, the petroleum-based industries, high polymers, and solid state chemistry. The pulp and paper industry and the basic chemicals industry continue to draw many chemists. An increasing number of chemists who have developed a talent for administration are found in executive positions in industry. Largely as a result of federal government support, many small, secondary industries are now employing chemists for their research laboratories.

Government laboratories such as Atomic Energy of Canada; the Defense Research Board; the Fisheries Research Board; the Department of Energy, Mines, and Resources; the Forest Products Laboratory; the Department of Agriculture; and the Food and Drug Laboratory, continue to employ large numbers of chemists at all levels.

The growing enrolment in Canadian universities has opened up many positions for chemists at the Ph.D. level. The Director of the Department of Chemistry at Laval University notes a very strong demand for doctoral graduates with a number of years of independent research to their credit.

The number of persons entering the chemical profession is increasing each year but this increase is not keeping pace with the demand. This is reflected in the considerable increase in starting salaries for chemists during the last few years.

## **COMMERCE AND BUSINESS ADMINISTRATION**

Though the faculties of business administration in Canadian universities are rapidly growing, the demand for university business graduates has been such that the supply required by industry has yet to be met. Because of this trend, major companies are placing added emphasis and attention on their university



recruitment program, according to the Faculty of Commerce at the University of Alberta. This situation affords ample opportunities for commerce and business administration graduates.

The School of Business of the University of Toronto reports that the demand for business education and M.B.A. graduates is high. The School of Business has increased its full-time enrolment by over 50 per cent in the last two years. Salaries offered to M.B.A. graduates continue to be \$100 or more per month above salaries offered to Bachelor's degree holders. They have increased rapidly in the past few years and are closer than those of any other degree to the rates paid in the United States. Marketing and finance head the list of interests for University of Toronto graduate students. Forty per cent of this year's graduating class stated their primary interest was in marketing and 31 per cent indicate that finance was their first choice.

Rapid advances in the behavioural sciences, computer science, and quantitative methods mean that today's business manager must be a student of business in the best sense of the term. New courses being offered at the University of Toronto include marketing communications, business information systems, business strategy, and risk analysis.

The growth of business faculties is reflected in various universities across the country. Dalhousie University has announced a graduate program in business leading to the Master of Business Administration degree. The new program is designed to encourage graduates to remain in the Atlantic provinces for further education and careers.

Carleton University has opened a new School of Commerce offering a degree significantly different from the previous Bachelor of Commerce. The program of the school will require four years of study after senior matriculation, compared to the previous three-year course leading to a Bachelor of Commerce degree. The Vice-President of York University reports that York expects an additional enrolment of 300 in the School of Business in the academic year 1967-68. This represents a 70 per cent increase over 1966. Also, as part of the new Faculty of Administrative Studies, York University opened a school of Public Administration in September, 1967. The Assistant Dean of the Faculty of Commerce and Business Administration of the University of British Columbia reports an increase of 150 students in 1966-67 in the commerce program. This faculty now represents 6 per cent of the University's population. Also in 1966-67, there were an additional 60 students enrolled in the Master's program. The Assistant Dean notes that the demand for graduates from both these programs continues to grow. He also states that the undergraduate program in commerce has been substantially revised. The main changes include an increasing emphasis on quantitative methods in business and on management science, and a decreasing emphasis on the purely functional areas in business. It is expected that these changes will prepare the graduate to meet the needs of industry and to be able to provide leadership in respect of new ideas and techniques for business.

Memorial University has recently begun a five-year program in commerce after Grade 11. The program is considered as an honours course and those students completing the course with the required academic standing will receive their degrees with honours. The

Head of the Department of Commerce emphasizes that the new five-year course is designed to provide the student with a liberal education and to prepare students for a creative role in business. The course of study stresses the development of basic problem solving, organizational skills, and socially constructed attitudes. Memorial hopes to develop an M.B.A. program in the not too distant future.

The School of Business Administration at the University of Western Ontario has embarked on a major expansion program in facilities, faculty, and courses. Special emphasis is being placed on the development of new courses in the exploding management science area. In addition, the Business School has initiated a unique internship program. Students will be given challenging assignments to solve actual business problems between the first and second years of the M.B.A. program, and companies will get real problems addressed and solved and establish a direct relationship with the students.

The Director of the School of Commerce at McGill reports a considerable increase in enrolment since the introduction of the new programs in commerce. This new field of study is designed to be particularly useful to students entering either business or government. As well, the groups of specialization have been radically broadened and now include a sequence of courses in international business and in managerial accounting. In 1966-67 there was an increase of 29 per cent in first year enrolment. Apart from these undergraduate programs in commerce, 13 Canadian universities offer graduate study in commerce and business administration, three of which are at the Ph.D. level. These are Western, Montreal, and Laval.

There are many avenues of employment open to graduates in commerce and business administration today. Many graduates find employment in accounting, sales, advertising, and personnel work, and a number take positions such as trust officers, investment analysts, in market research, in banking, and in government service as junior executive officers.

The Retail Council of Canada suggests that the retail trade, employing 800,000 or more, is the biggest employer in the service industry sector. The larger- and medium-sized firms in the trade recruit considerable numbers of graduates in commerce and business administration each year for careers in merchandising and sales, promotion advertising, buying personnel training, methods and market research, and data processing.

Some graduates from an honours commerce course continue their studies to become lawyers or to teach at the university level, and some become secondary school teachers. A fair number of honours graduates go into business to pursue careers in management.

One professional organization which commerce and other graduates may join is the Chartered Institute of Secretaries. This organization accepts persons who have established, through examinations, that they have reached a professional level of knowledge and competence as executive administrators. Those eligible for membership include company or corporate secretaries, federal, provincial, and municipal administrators, and administrators of such other quasi-public bodies as universities, hospitals, and hydro-electric commissions.



The required course of study that chartered accountant students must follow and the examination that they must write vary from province to province. There are ten provincial Institutes of Chartered Accountants responsible for determining what the course of studies will be. The Canadian Institute prepares the uniform examinations used by the provincial organizations.

Three Quebec universities—McGill, Laval, and Montreal—offer the licentiate in accountancy. Under this program, licentiate students write, in their final year, the chartered accountant's uniform final examinations, and by successfully completing these examinations and receiving their licentiate, they are eligible for admission to the Institute of Chartered Accountants of Quebec without further examination. A similar situation exists for certain graduates of the University of Sherbrooke. A combined Bachelor of Commerce—Chartered Accountants' program which grants both degree and diploma within a six-year period by service in the profession and study at the university is offered by the University of Saskatchewan.

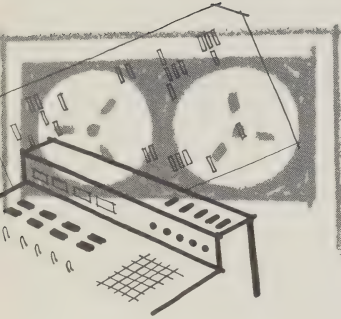
The Canadian Institute of Chartered Accountants once looked mainly for commerce graduates as students. Now, however, graduates of other faculties such as arts, engineering, law, and science are being encouraged to enter public accountancy. The Institute of Chartered Accountants of Ontario reports that their annual intake of university graduates is approximately 40 per cent commerce and 60 per cent arts and related faculties. Commerce graduates who meet certain requirements in their undergraduate courses can complete their formal studies in two years, although they are required to undertake a third year of practical experience before becoming eligible for membership in the Institute.

The Society of Industrial and Cost Accountants of Canada offers a five-year program which, combined with four years of practical experience, awards the candidate the designation "Registered Industrial and Cost Accountant." The Society reports that employers seeking qualified accounting personnel give preference to university graduates who have or are working towards specialized professional qualifications. A university graduate who has majored in accounting may be granted exemptions from certain courses and examinations and given remission of two years on the experience requirements. Such a graduate will then be able to fulfil the requirements for registered industrial accountant qualification in two years. The Society, which graduates about 350 registered industrial accountants annually, notes that approximately 15 per cent of its annual student body are university graduates with the majority of these being graduates in commerce or business administration. A growing number of engineering graduates are entering the course as the need for broader managerial skills becomes obvious.

The course of study offered by the Society is provided by lecture in co-operation with 23 universities in Canada and by correspondence in co-operation with McMaster University. The courses and examinations are uniform throughout Canada.

The Certified General Accountants Association reports that opportunities for advancement as a Certified General Accountant are excellent. The Association gives additional credit to course applicants who are university graduates. Certified General Accountants (C.G.A.) are employed in industrial, commercial,

## COMPUTER SCIENCE



and governmental work and are engaged as certified public accountants in those provinces where permissive legislation exists.

The Chairman of the Education Committee of the Computer Society of Canada expresses concern that the computer industry is at present suffering from an extreme shortage of qualified university graduates for many computer-related positions. The number of computers installed in Canada is still increasing at an unprecedented annual rate of about 10 per cent, with more than 1,000 currently in use.

The application of computers to many facets of business, the manufacturing, wholesaling and retailing industries, research, and education has increased the requirements for application programmers, software programmers, instructors, sales representatives, and for persons to fill the many other related positions.

Almost every Canadian university now offers courses in computer science either at the undergraduate or graduate level. There are now computer science departments at several universities offering degrees from the Bachelor's to the Ph.D. level. The University of Saskatchewan in Saskatoon has now established a Department of Computational Science. The department will be interdisciplinary in nature and offer both undergraduate and graduate courses. Queen's University recently opened a new computer centre at the University, which will offer courses in computer science through the faculty of arts and science, applied science, and the school of business. Engineering students will be required to take one course in computer science in their first year, further courses being optional. The University of Manitoba recently installed a new computer which is reported to be the most powerful in Canada.

Business is continuing to rely steadily on the computer. Not only are trained people necessary to program the computer, but also additional personnel are in demand by the manufacturers of computers. They would be involved in such activities as research work to expand the use of computers. Qualified personnel are required by manufacturers in order that prospective buyers may have the use and potential of the computer coherently explained to them.

Because of the demand for trained personnel in industry, government, and the academic community, many graduates of science, mathematics, engineering, commerce, and certain other faculties, with only introductory courses in computer science and a good programming aptitude, can expect many opportunities for employment at attractive starting salaries. The average salary for 1967 graduates was \$550 per month.

## DENTISTRY

The need for dentists in Canada is strong, according to the Canadian Dental Association, and the effect of our growing population attaining higher levels of personal income and education should be to increase the demand for additional dentists in the future. In addition to the need for practising dentists, the Dean of Dentistry at the University of British Columbia reports that there is at present a severe shortage of qualified career dental teachers and research workers.

The opening of a new dental school at the University of Western Ontario in September, 1966, brings the number of such schools in





Canada to eight. A ninth school is being planned for the University of Saskatchewan which may receive students in the fall of 1968. About 300 dentists graduated in 1967 from the existing institutions, and a further 320 graduates are expected in 1968.

An increasing number of graduate dentists wishing to enter specialty practice or teaching and research undertake study leading to a graduate certificate or a B.Sc., M.Sc., or Ph.D. degree in dentistry. Financial assistance for these students is available from the National Research Council, the Department of National Health and Welfare, the Canadian Dental Association, the Canadian Fund for Dental Education, and other private foundations and organizations.

The dental schools at the universities of Manitoba, Toronto, Alberta, and Montreal and McGill University now offer graduate programs and Dalhousie has embarked on a planning study which, it is hoped, will lead to an early expansion of facilities and research and to the establishment of graduate studies. Forty-four students were enrolled in graduate courses in 1966-67 in such special fields as oral surgery, orthodonty, and periodonty.

While the majority of dentistry graduates are self-employed, considerable numbers are engaged in teaching and research at dental schools and in hospitals, industry, public health services, the armed services, and government departments. New dentistry graduates working on a salaried basis may expect to receive about \$750 per month while those in private practice are likely to earn somewhat more. The nature of dental practice today is so advanced that most dentists see fewer patients each day in spite of the fact that they are working with superior equipment and materials. This is so because the emphasis today is on saving teeth rather than extracting them.

## Dental Hygiene

Recent advances in dental research and an increased awareness of the necessity for prevention of dental diseases have combined to make dental hygienists an increasingly important group in providing health services to the community.

The Director of the School of Dental Hygiene at the University of Manitoba reports that the increased and continuing demand for dental hygienists has resulted in the establishment of three new schools of dental hygiene since 1960 and the planning of at least three more. Two-year courses leading to a diploma in dental hygiene are now being offered at four universities: Manitoba, Alberta, Toronto, and Dalhousie. These schools graduated more than 80 dental hygienists in 1967. Following graduation, the dental hygienist must apply to a provincial licensing board before undertaking practice of the profession.

Many dental hygienists are employed in private dental offices where, distinct from dental assistants, they perform certain preventive treatments for patients. There is also a continuing shortage, however, in school and municipal public health services, where the work is mainly educational; in hospitals; in industry; and in provincial and federal government departments. Hygienists with additional educational qualifications are needed for teaching positions in schools of dental hygiene.

Starting salaries for dental hygienists compare well with those in other health service professions and are in the range of \$375—\$385 per month.



## ECONOMICS

Each year there is an increase in the number of opportunities for economists in government service, industry, and the universities. Those with a Bachelor's degree in economics will find that undergraduate training is a useful grounding for graduate study in law and business. Other outlets after graduation are in the civil service and private business, with journalism also a possibility. The President of the Canadian Political Science Association notes that a large proportion of students, on completing their honours B.A. programs, are able to win places in graduate schools not only in Canada but also in the U.S. and in European universities. There was an unprecedented 80 per cent increase in honours B.A. (Economics) graduates in 1967 over 1966.

There is a wide market open to economists, particularly those with graduate degrees to the Master's or Doctoral level. Apart from academic employment there is also a growing demand by the research departments of private businesses and business associations. A small but important market for economists exists as well in the international organizations such as the OECD and the World Bank. One significant trend is the growing importance of graduate training, especially in statistics and econometrics, in the preparation of a professional economist.

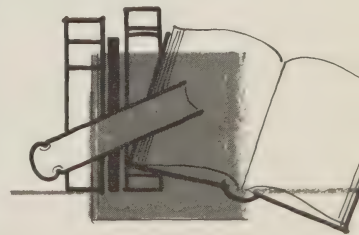
In the area of graduate studies, the Acting Chairman of the Department of Political Economy, University of Toronto, reports that that University offers a wide range of graduate courses including economic theory, econometrics, economic history, economic development, labour economics, public finance, and international trade. Other universities which offer a Ph.D. in a variety of areas in economics include British Columbia, Western Ontario, Queen's, McGill, Alberta, Ottawa, Laval, and Montreal. Carleton University plans to institute a Ph.D. program in economics in 1967. The University of Saskatchewan offers a Ph.D. degree in economic history and a special program in the political economy of communications. Memorial University of Newfoundland gives a Master's program oriented toward economic development with particular emphasis on resource industries, labour force problems, and regional development, while the University of New Brunswick offers the Master's degree in four areas—microeconomic theory, macroeconomic theory, public economy and national and regional economic development. All of the Master's degree courses in economics at New Brunswick give special attention to the problems of the Atlantic Provinces.

Salaries for starting economists relate generally to those in other professions requiring similar academic training. However, on the whole, starting salaries for academic economists are higher than salaries in other university departments.

There continues to be a considerable shortage of teachers in Canada at all educational levels. The greatest demand exists in the secondary and post-secondary sectors, but there is at present little danger of producing too many elementary teachers in the country as a whole.

According to a report prepared by Dr. Norman France, Dean of Education at Regina Campus of the University of Saskatchewan, Canada will require 270,000 teachers in elementary and secondary schools by 1970 compared with a current total of just over 230,000. The combination of new requirements and replacement of those

## EDUCATION



who leave the profession means that some 35,000 to 40,000 new teachers will be needed each year until 1975. If these requirements are to be met and if professional qualifications are not to be lowered, there must be an even greater expansion than at present in the enrolments and training facilities of faculties of education and teachers' colleges where the current production of teachers is about 18,000 to 20,000 per year. The continuing emphasis on upgrading teacher qualifications will compound the problem. For some time to come it appears that substantial numbers of new teachers will have to be recruited from other educational institutions, other occupations, and other countries.

Many significant developments are taking place in the realm of education which will substantially transform the nature of the teaching profession. One of these is the increasing use of television and other technological aids in the school. Many provinces are expanding their radio and TV programs, especially Alberta and Ontario, and the latter has set up an Educational Television Branch in its Department of Education. The federal government plans to establish a crown corporation to create facilities for the rental of time to provincial agencies in this field. The use of television does not supplant the teacher, but it can assist him in a variety of ways. It can enable several schools to share educational experiences that would be too expensive, awkward, or time-consuming for an individual teacher or school to obtain or prepare. Film clips, charts, models, slides, and many other instructional materials can be used in this way as a most effective medium of communication. It also permits a particularly gifted teacher or special resource person to have greater exposure to students.

Along with the increasing application of television in schools is a growing use of language laboratories in the learning of a second language and an earlier and more extensive use of laboratories in science courses.

A second development which is gaining wider application is the concept of team teaching. This involves two or more teachers (often four) working together as a team with a larger group of pupils to maximize the impact of instruction. It employs a variety of teaching situations including lectures, group discussions, and individual study and research. Team teaching allows greater specialization for each teacher involved and tends to increase the number of teachers required for a given number of pupils.

Thirdly, the development of a continuous progress system is replacing the traditional grade system in the elementary schools and subject promotion is replacing grade promotion at the higher secondary levels. Continuous progress is an instructional organization which permits a pupil to progress at his own individual rate of learning. New Brunswick is the latest province to embark on this program following others such as Saskatchewan, British Columbia, and certain individual school boards in other provinces.

A fourth development is a decrease in the pupil per teacher ratio. Most educationists would suggest that the smaller this ratio, the greater the educational benefit to the pupil. Although actual class size may be somewhat larger, the average ratio for all Canada in 1965-66 was 24 with appreciable provincial variations. The study by Dr. France predicts that a ratio of 22 pupils per teacher could be a realizable aim by 1970 and of 20 pupils per teacher by 1975. This development will also increase the number of teachers required.



Another development which is in its very early stages is the use of teachers' assistants. Such persons are hired to relieve teachers of some of their clerical, administrative, or supervisory duties in order to enable them to devote more time and attention to teaching and less on preparation. Several of the new Ontario Colleges of Applied Arts and Technology will offer a two-year course for education assistants with options for such positions as school library assistant, audio-visual technician, and social work assistant.

Another device of teacher assistance is an increasing use of computers. Ontario, for example, has begun to establish a network of regional data processing centres throughout the province for the use of its schools.

New developments are also taking place in the area of teacher training. Most provinces have now brought teacher training under the jurisdiction of their degree-granting institutions. Quebec is in the process of bringing all of its teacher training under the auspices of degree-granting institutions from the teachers' colleges; Manitoba and Prince Edward Island have recently made this change, and Ontario anticipates a closer co-operation between its teachers' colleges and universities. Any new Ontario teachers' colleges are being established on or adjacent to university campuses.

A second development in teacher training is the introduction of internship programs in several provinces. In these programs prospective teachers receive intensive experience in the schools under the guidance of qualified teachers. In Alberta, the internship program is operated as part of the recruitment program of local school boards. At the University of Saskatchewan, an experimental diploma internship course is in operation for graduates of other faculties. This program involves four months of continuous employment as an intern. The Ontario Department of Education has announced a somewhat similar internship plan for training university graduates of more mature years as elementary school teachers. At Simon Fraser University the regular program for all education students includes two lengthy periods of work in the schools of eight and 16 weeks respectively.

Another development in teacher training is the raising of the educational requirements for teachers. Most provinces have set an objective of requiring every person entering the teacher profession to have a university degree. This objective will not be met in all cases in the near future but several very short emergency-type teacher-training courses have been recently abandoned.

The University of Victoria has inaugurated a plan for persons already holding a degree to become fully qualified teachers after two summers' training with a year of intern teaching between. In Quebec, the holder of a maîtrise or licence, a baccalaureate, or a diploma in education may enroll on one of ten specialized teaching diploma courses or a course in school administration. These courses are being offered on a part-time basis in normal schools and other institutions approved by the Department of Education.

The University of British Columbia is offering a new diploma program in adult education for persons with a Bachelor's degree or those with some university background and experience in adult education. This course will enable them to acquire skills in organizing, conducting, evaluating, and administering adult education programs.

The University of Alberta plans to extend its programs in early childhood education, special education, industrial arts, art education, and guidance and counselling.

The Ontario Institute for Studies in Education which was established in 1965 is expanding its areas of endeavour. A division of continuing education has been added to these other divisions: administration, applied psychology, curriculum research and instructional techniques, field services, foundations, information and data systems, measurement and evaluation, and planning. Graduate studies are expected to flourish in the research atmosphere provided by the Institute and a large number of assistantships will be provided. The Institute intends to develop close contacts with the University of Toronto and hopes to arrange for the interchange of staff with other educational institutions in Canada and abroad.

There continues to be a great variety of educational employment. New areas such as industrial training, manpower counselling, educational planning, and administration all require large numbers of new recruits.

## Elementary Teaching

The Head of the Department of Elementary Education at the University of Alberta has suggested that there are five main changes taking place in the elementary school curriculum. These are a revision of the content of traditional subjects, the introduction of new subjects such as French in English-speaking schools, a greater individualization in learning, and an earlier grade placement of subject matter combined with starting school or kindergarten at an earlier age.

Kindergartens have been slowly but steadily gaining ground in Canada over the years. Largest kindergarten enrolments are still in Ontario but significant gains have recently been made in British Columbia, and, with the adoption of Regulation No. 1 by Quebec, provision has been made for kindergartens throughout that Province's educational system.

It is at the elementary level that the greatest advances have so far taken place in ungrading schools. This is part of an effort to make provision in the educational system for the individual differences among children.

Efforts are underway across the country to upgrade the qualifications of elementary school teachers in particular. Invariably, the average training of members of this group is lower than that of teachers at secondary levels. Between 1959-60 and 1964-65, according to the Canadian Teachers' Federation, the proportion of elementary teachers with at least one university degree increased from 9.6 to 11.1 per cent. In both Ontario and Quebec it has been recommended that in the future a Bachelor's degree should be required for teaching in elementary schools.

In most provinces there is a heavy demand for elementary teachers with university degree qualifications. The Alberta Teachers' Association reports that a large number of teachers from abroad are hired for the elementary schools of that province. In Ontario, the demand for well qualified elementary teachers has prompted the establishment of the Primary School Specialist Certificate course at two additional teachers' colleges—Ottawa and Hamilton—as well as at Toronto.



## Secondary Teaching

According to a Canadian Education Association Convention report, these are some of the changes in progress in the curriculum of secondary schools: a more effective and expanded use of available resources such as field trips, theatres, and museums; an enrichment of education programs; more emphasis on the social sciences of economics, sociology, and political science; programmed instruction allowing pupils to advance at their individual rate and subject rather than grade promotion, and a greater flexibility in course requirements with encouragement of students to pursue individual interests. Students will take more responsibility for their own education and rely on the teacher more as a guide to various sources of inspiration and direction.

There has been a thorough revision of the secondary school curriculum in recent years in many provinces. In many cases completely new courses have also been added. In the fall of 1967, for example, Saskatchewan introduced a driver-training program as part of the high school curriculum. Several provinces are experimenting with courses in sex education. Ontario is offering more courses in data processing in its high school business programs and trial courses in computer science, geology, world politics, and man in society. The teaching of a second language is being started at an earlier grade in most provinces, if not in elementary school.

According to both the Ontario Teachers' Federation and the Ontario Secondary School Teachers' Federation, the shortage of secondary school teachers has, if anything, increased because more students are staying at secondary school longer and because of the number of other positions open for secondary school teachers in such new institutions as the Colleges of Applied Arts and Technology. These new institutions in Ontario are recruiting many of their senior officers from the secondary schools, and this development will no doubt be duplicated to a lesser extent in the other provinces such as British Columbia, Alberta, and Quebec which are planning to expand their junior or community college programs. As smaller class loads are effected, the demand for secondary school teachers will increase that much more. The Canadian Teachers' Association reports that in 1964-65, 72 per cent of Canadian secondary school teachers possessed at least one university degree.

The demand for secondary school teachers is high for almost all specializations. Besides the various basic academic subjects, these include areas such as physical education, home economics, guidance, commercial, music, and librarians. Various organizations and commissions in many provinces have recommended that a specialized Bachelor's degree should be the minimum requirements for teaching in any subject.

The level of education beyond secondary school embracing principally universities, colleges, technological institutes, and teachers' colleges continues to be the fastest growing segment of the educational system. Employment opportunities for teachers at this level are growing very quickly.

Because of rapidly increasing enrolments the universities were required to increase their teaching staff by 14 per cent in 1966-67. With enrolments expected to rise at an even greater annual rate in the next several years, a severe shortage of university teachers

## Tertiary Level Teaching

is predicted for the decade. Some predictions suggest that after 1975 the shortage may ease somewhat as more Ph.D. graduates are produced and new teaching techniques, especially the increased use of television, are adopted. Several Canadian universities are now experimenting with televised lectures and demonstrations.

The present shortage of university teachers combined with an increasing competition for Ph.D. graduates by business and government has forced university salary rates much higher in the last few years. The Dominion Bureau of Statistics estimates that the median salary for all ranks of university teaching staff was \$11,175 for 1966-67, a 9 per cent increase over the preceding year. The average salary for lecturers was over \$7,500; for assistant professors, over \$9,500; for associate professors, over \$12,000, and for full professors, over \$16,000.

Almost all the teaching staff at universities are drawn from those who have qualified for Master's or Doctor's degrees. Increasingly, in most disciplines, new recruits have at least done some work beyond the Master's level. The universities of Toronto and Waterloo have instigated a Master of Philosophy degree. This degree makes graduates well qualified to teach at the university level but does not involve as extensive a research project as the Doctor of Philosophy program.

For the past few years enrolments in the graduate schools of Canadian universities have been growing more rapidly than have undergraduate enrolments, and this trend is continuing to accelerate. However, even with the rapid increases of those graduating with higher degrees, it will still be difficult to meet all of Canada's tertiary teaching requirements from Canadian graduate schools. The program called "Operation Retrieval" originated by the Association of Universities and Colleges and sponsored by the Department of Manpower and Immigration in co-operation with the A.U.C.C. has been continued and expanded. It seeks to attract back to Canada Canadian graduate students studying abroad, principally for the purpose of undertaking academic careers.

According to the Dean of Arts and Science at York University, the most serious problem is to attract to the universities full professors, associate professors, and, above all, chairmen of departments. He has reported that it is very difficult to move people with established reputations and to persuade distinguished scholars to assume administrative responsibilities.

A great expansion of junior or community colleges is presently being undertaken across the country. British Columbia has recently established two new colleges of this sort, and Alberta three, and both provinces are planning others. Ontario has recently set up 19 Colleges of Applied Arts and Technology, some of which incorporate the previously existing institutes of technology in the province. Quebec is planning the establishment of 30 new junior colleges in the near future to offer courses at the post-secondary but pre-university level. These developments will increase markedly the requirements for teachers at the tertiary education level. In most cases the teachers at this level will possess a Master's degree or its equivalent.

The great shortage of teachers at the tertiary level can be somewhat alleviated by the part-time employment of people who are engaged in other occupations. A much higher proportion of



the teachers in the tertiary sector of education have part-time teaching careers than is the case in the elementary and secondary school system.

There is at present a great deal of competition among industries and government for the services of graduating engineers in Canada. This shortage can only be eliminated by increased enrolments in engineering or by graduating more technologists and technicians to whom can be given many of the tasks currently performed by professional engineers. The Director of Special Services of the Association of Professional Engineers of Ontario urges engineers to vacate a large area of technical activity which is now rightfully the property of engineering technologists. This would clarify the role of the engineer as involved in experiment and research and the technologist and technician as carrying out the duties set out in theory by the professional.

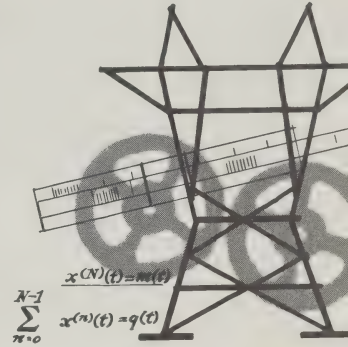
The nature of the engineering profession is changing rapidly. One of the main causes of this change is the increased use of computers. A report of the Organization for Economic Co-operation and Development suggests that graduating engineers are rarely capable of exploiting the full potential offered by computers. Since the engineer is tending to be replaced in many of his traditional functions, he will be expected to undertake work calling for a greater knowledge of more general techniques often of a highly mathematical type. He will need, according to the OECD report, less training of the specialized and process-oriented type, and more education in general principles and mathematical methods with a wide scope of application.

Changes are taking place so rapidly in the engineering field that the skills of the new graduate quickly become obsolete. Recognizing this problem, several universities are offering extension or graduate courses to assist in keeping the engineer up to date. The Extension Department of the University of Toronto, for example, has been giving increased emphasis to the engineering field. The University of Calgary has established a new type of Master of Engineering degree oriented toward engineers in professional practice who wish to improve their qualifications. It may be obtained on a part-time basis. The University of Alberta has introduced a similar program in some engineering departments.

Similarly, five Ontario schools of engineering have introduced new Master's programs devised to meet the urgent needs of the engineering profession in practice. The University of Western Ontario is the latest to adopt this development which differs from the more traditional pattern being continued as well that is geared more to producing research scientists and university teachers. The new program is designed to attract graduates who have practised for some time as well as those just graduating at the Bachelor's level. In the former case, this requires the employer to give staff leave with pay in order to continue their studies.

A relatively new co-operative venture between engineers and researchers in biology and medicine is a new discipline called biomedical engineering. It is leading to great advances in aiding the handicapped and in the diagnosis and treatment of disease. The University of Toronto has an Institute of Biomedical Electronics, the University of New Brunswick has a Bio-engineering Institute, and McGill University has recently formed a Biomedical

## ENGINEERING AND APPLIED SCIENCES



Engineering Unit. The McGill unit will place initial concentration on the training of those with a Bachelor's degree in engineering and will be concerned with instrumentation, artificial organs, and control theory. The University of Saskatchewan offers a special combined engineering and pre-medical course.

It is evident that the image and role of the engineer is changing and growing continually. Engineers, like nearly all other professionals, must remain in a constant state of initiation and learning. Graduation from university can no longer be considered the end of the learning process. Instead, it is the springboard to practical on-the-job training that, coupled with graduate courses, will keep the engineer abreast of current developments.

## **Aerospace Engineering**

The aerospace engineer is concerned with the design, construction, and operation of vehicles and equipment for flight in and out of the earth's atmosphere. These principally include aircraft, rockets, and satellites. This is a rapidly growing field with graduates being required by government regulatory and research agencies; the armed forces; manufacturers of aircraft and other aerospace vehicles, equipment and parts, and air transport companies.

There is also a constant demand for graduates with aerospace training in related, highly technical non-aerospace fields. Roughly 70 per cent of the professional aerospace and aeronautical engineers in Canada are employed in industry, 25 per cent by government, and the remainder, in universities and other educational institutions, according to the Canadian Aeronautics and Space Institute.

Many universities offer individual courses in the field of aerospace engineering. The universities of Toronto and Saskatchewan and McGill University are probably the most advanced in offering specialized or graduate programs in this area.

## **Chemical Engineering**

Chemical engineers are engaged in the efficient production of new and useful products from raw materials. This includes the design, construction, and operation of plants which make plastics, adhesives, fuels, antibiotics, synthetic fibres, paints, and paper. The chemical process and resource extractive industries, including the petroleum industry, hire most of the available graduates although the number of industries employing chemical engineers is continually increasing and employment opportunities are extremely varied. Those who have done graduate work are in demand as researchers and university teachers.

The University of Alberta offers option courses in petroleum engineering to undergraduates in the senior years of chemical and mechanical engineering. A graduate program leading to a Master's degree in petroleum engineering is also available at both the universities of Alberta and Saskatchewan.

The demand for chemical engineers remains very high but the supply of such graduates is increasing rapidly. From a total graduating class of about 350 in 1967, it is expected that the number graduating in 1968 will be about 470, an increase of 33 per cent. Seventeen Canadian universities offer the Bachelor's degree in this discipline and 15 have doctoral programs.

Career opportunities are so extensive that most Bachelor graduates seek employment immediately upon graduation. However, an increasing proportion is continuing into graduate work.





Close to 125 Master's and Doctor's degrees were awarded in 1967. In addition, a number of chemical engineers do graduate work in chemistry.

Salaries for new graduates have been rising rapidly to a rate of about \$595 for 1967, one of the highest rates in any engineering field.

## **Civil Engineering**

The shortage of civil engineers in Canada is one of the most serious of all engineering disciplines. The number of graduates has not increased substantially in the past few years although a larger increase is predicted for 1968.

The civil engineer may be employed in a great variety of undertakings. These include the design of buildings and bridges; the supply of services such as water, power, and waste removal; the field of transportation—roads, railways, subways, canals; and in soil mechanics and surveying.

The bulk of civil engineering graduates is hired by construction and consulting firms as well as by various government agencies. Others may find employment in fields as diverse as public utilities; the pulp and paper or petroleum and mining industries; flood control; atomic energy, and communications. There is at present a very serious shortage of civil engineers in the highways industry in particular.

According to the Head of the Department of Civil Engineering at the University of Alberta, in the near future all engineers involved in design, development, and engineering management will require training at the graduate level. To this end, more emphasis is being placed on graduate work, and the University of Alberta has recently established a new Master of Engineering in civil engineering especially designed to meet the needs of engineers employed in industry, government, and consulting practice. Nineteen other Canadian universities offer graduate programs in this discipline including the University of Calgary which has just introduced a Ph.D. program. The University of Waterloo offers a specialized program in transportation engineering.

About 550 civil engineers graduated in 1967 and the class of 1968 is expected to be about 18 per cent higher. At the graduate level, about 100 Master's and 30 Doctor's degrees are expected to be awarded in this field in 1968. Salaries for 1967 Bachelor's graduates were about \$590, a substantial increase over previous years.

## **Electrical Engineering**

Electrical engineering, having received a tremendous impetus during the Second World War, particularly in the areas of electronics and automatic control, and further stimulation from efforts at space travel, is undoubtedly one of the fastest-growing branches of engineering. Communications systems such as radio, television, and satellite communication links also require the skills of electrical engineers as does the computer systems industry.

The Head of the Department of Electrical Engineering at the University of Toronto reports that well-qualified graduates are very much in demand, and such a variety of work is available that there should be no difficulty for either men or women in finding suitable positions. These might be in manufacturing, development or research, systems or plant operation, sales or consulting, in private companies large or small, in public utilities, the civil



service, or the armed forces. Many excellent management opportunities become available to engineers with considerable industrial experience.

The public utilities offer positions in such activities as station design and operation or pure research and system analysis, while large firms engaged in the manufacture of heavy electrical equipment hire graduates for the design and development of new products and for sales.

Opportunities exist as well in the fast-growing electronic-computer industry for people to design, develop, sell, and operate the highly sophisticated equipment. For those who like a variety of work outside an industrial atmosphere a few good positions are offered annually by firms of consulting engineers. Positions offering considerable scope for electrical engineers are available in the chemical and medical industries, to design and supervise electrical systems, to develop special equipment, or simply to contribute an engineering viewpoint to the solution of a wide variety of problems.

The armed forces employ large numbers of engineers of all types and can offer considerable financial assistance to students who enlist in their earlier years. Some electrical engineering graduates become secondary school teachers of physics and mathematics.

The University of Toronto notes that few research or university teaching positions are available to a person with only a Bachelor's degree. Industry has also come to appreciate the value of graduate training and many of the positions available will require such qualifications. As a result, most top students pursue graduate studies, and many return from industry for full or part-time courses. At the University of Toronto, for example, one quarter of all students in electrical engineering are graduates working toward higher degrees.

Most Canadian universities offer electrical engineering courses at the Bachelor's level, and 16 offer graduate study as well. The number of students graduating in this field at the Bachelor's level has shown a steady increase since 1965, and totalled 650 in 1967, a rise of 6.5 per cent over 1966 figures.

The number of Bachelor's graduates in engineering physics continues to decline despite a heavy demand for this type of engineer. A slightly greater number of students are expected to win graduate degrees in this discipline in 1968, however, than was the case in 1967.

Graduates in engineering physics receive a more intensive training in mathematics and physics than other engineering fields which are more concerned with the analysis and direct solution of problems of an applied nature. They are therefore often hired to do fundamental research, and are also ideally suited to careers as geophysicists and meteorologists.

The engineering physics curriculum at Queen's University has recently been revised with the introduction of a materials science option. The intention is to attract more students and in time improve the quality of graduates available to the metals industries. The other option, electrical, should continue to provide graduates to the electrical and electronics industries.

## Engineering Physics

Besides these two industries, several governmental agencies employing engineering physicists are the Meteorological Service of Canada, the National Research Council, the Defence Research Board, and Atomic Energy of Canada.

Salaries for graduates in engineering physics are among the highest in the engineering field.

## **Geology and Geological Engineering**

The work of the geologist and the geological engineer involves the study of rocks and soils to determine surface and sub-surface structure and the application of the results to the construction of buildings, highways, railroads, bridges, and dams or to the discovery, exploration, and development of mineral deposits. Whereas at one time most graduates entered the field of metallic minerals or the oil industry, the Head of the Geology Department at the University of Manitoba points out that at least half of today's graduates are employed in engineering companies or in hydrogeology and a fair number take advanced training in geophysics.

The number of geologists being produced by Canadian universities is rising rapidly. About 185 graduated at the Bachelor's level in 1967 and about 230 are expected to graduate in 1968. A large proportion of these go on to graduate work so that over 150 graduate degrees in geology are awarded annually. This results in increasing competition for their services among industry, government, and the academic field. Many of those with graduate training enter the university teaching field while a number of Bachelor's graduates become secondary teachers with the introduction of an earth science curriculum at the high school level.

The current shortage of geologists is reflected in the increasing number of foreign graduates in this field seeking employment in industry, and the Geological Survey of Canada's inability to obtain sufficient Canadian geologists and summer assistants to staff its regular summer programs is a direct result of this shortage. Salaries in this discipline are rising rapidly. In 1967, Bachelor's graduates in geology were offered an average starting salary of about \$575 per month, Master's graduates about \$650, and Ph.D. graduates about \$810. Graduates in geological engineering received slightly higher starting salaries.

## **Geophysics and Geophysical Engineering**

According to the Canadian Institute of Mining and Metallurgy, the number of Bachelor's graduates in geophysical engineering and geophysics has remained about the same for the years 1965 to 1967. Graduate degrees awarded in these disciplines dropped in 1966 but increased in 1967 and are expected to be constant in 1968. In all cases, the number of graduate degrees won has nearly equalled the number of Bachelor's degrees awarded.

This tendency of many geophysicists to remain on at university for graduate work, often in preparation for teaching careers, results in an even greater shortage of graduates being available for employment in mineral exploration where very attractive salaries are being offered. There is a demand for geophysicists to undertake assignments under various Canadian and United Nations foreign aid programs as well as to work in the Canadian mining industry.

The geophysicist is essentially concerned with the measurement of variations in the earth's magnetic field, its conductivity, gravity, or reaction to earthquakes, natural or man-made. Geophysical



methods of exploration are being increasingly employed by exploration companies as an aid in mapping and in an attempt to locate buried and drift-covered deposits. In the petroleum industry, for example, geophysicists are employed with the intent of evaluating prospective areas for the occurrence of structure or reservoirs that might be oil bearing.

Industrial engineering is concerned with the design, improvement, and installation of integrated systems of men, materials, and equipment. It draws upon specialized knowledge and skill in the mathematical, physical, and social sciences together with the principles and methods of engineering analysis and design to specify, predict, and evaluate the results to be obtained from such systems.

Three Canadian universities now offer a program in industrial engineering—Toronto, Windsor, and the Nova Scotia Technical College and a number of others are considering the introduction of such a program. The course at Nova Scotia is peculiar in containing, in addition to courses in management, operations research, mathematical statistics, computers, production, and company operations, a practical investigation of a real industrial engineering problem in local industry. A total of about 85 graduates emerged from the three schools in 1967 and a similar number is expected in 1968.

Many industrial engineers gain their training through graduate studies following undergraduate work in engineering, science, or mathematics. There is a fairly large number of universities both in Canada and in the United States that offer graduate courses which prepare the student for work in industrial engineering or operations research. Those in Canada include McGill, Queen's, Toronto, Western Ontario, and British Columbia.

According to the Head of the Industrial Engineering Department at the Nova Scotia Technical College, since 30 per cent of engineers eventually find themselves in management, they should be as well prepared as possible to exercise administrative responsibility. Some of the job opportunities available are in management, plant design, electronic data process, systems analysis and design, production and quality control, and standards and measurements of performance.

The demand for graduates in this field considerably exceeds the supply, and salaries compare favorably with other engineering disciplines.

Mechanical engineering is the branch of engineering which deals with the design, manufacture, and operation of all types of machinery, sewer plants, or manufacturing plants.

In Canada, 18 of the 21 universities granting engineering degrees offer courses in the mechanical engineering specialty. In 1967, these 18 schools graduated a total of about 700 mechanical engineers; 565 with first degrees (either Bachelor of Applied Science or Bachelor of Engineering), 100 with Master's degrees, and 20 with Ph.D's. In 1968, this figure is expected to increase more than 20 per cent to a total of 850. The number of Bachelors graduating should increase by almost 25 per cent to 700.

The Head of the Mechanical Engineering Department of the University of Alberta states that mechanical engineering is one of

## **Industrial Engineering**

## **Mechanical Engineering**

the most varied of the engineering fields and possesses unlimited potential for development. The automotive and aeronautical industries are tremendous segments of our national economy which have yet to reach their full growth. Existing industries making use of automation, the advent of new sources of energy, and new materials and products will create opportunities unthought of today.

The growth possibilities of mechanical engineering are reflected in salaries paid to its graduates. In 1967, holders of Bachelor's degrees received an average starting salary of almost \$6,800 a year.

## **Metallurgy and Metallurgical Engineering**

The future of the Canadian metallurgical industry is very promising and the need for metallurgical engineers is extremely strong. Opportunities for employment open to the new graduate are almost innumerable.

The metallurgical engineer and metallurgist are concerned with the application of engineering principles to the recovery of metals and their alloys from ores and the conversion of them into suitable forms, compositions, and physical states for practical use. Various specialities within the field of metallurgy are mineral dressing, physical metallurgy, and extraction metallurgy.

The steel industry incorporates all aspects of metallurgy and the zinc and lead industries employ many physical and extraction metallurgists. The nickel, copper, and cobalt industries employ metallurgical engineers for their operations and research, and the aluminum industry needs such graduates for its process and development work. Extraction metallurgists in particular are also required by the gold and uranium industries. The combined demand for metallurgists far exceeds the supply, and most universities and the mining and metallurgy industries have been seeking ways to increase the number of students entering this profession.

Slightly more than 100 metallurgical engineers graduated in 1967 and about the same number are expected to graduate in 1968. Nearly as many graduate degrees are awarded annually, with some increase anticipated in 1968. Ten Canadian universities now offer degrees in metallurgy or metallurgical engineering.

## **Mining Engineering**

The Canadian Institute of Mining and Metallurgy predicts an increasing supply of mining engineers in the next few years, especially at the graduate level. Almost half of the graduations in this discipline in any year are beyond the Bachelor's degree. Three of the largest schools for mining engineers, the University of British Columbia and Laval and Queen's universities, operate in close co-operation in the design of their courses of study. Each offers graduate study in certain special fields with students and faculty being able to move freely among them. The other universities offering mining engineering are Alberta, Montreal, McGill, Saskatchewan, and the Nova Scotia Technical College.

The mining engineer is involved in all of the steps concerned with the production of minerals. These include prospecting for deposits; exploring the depth, content, and range of deposits; mine development; mineral extraction, and ore dressing. A serious shortage of mining engineers exists to service Canada's large mining industry.



The mining engineer may choose a career in the manufacturing industry, in research, in management, or in various specialities such as exploration, rock mechanics, or mine operations. Graduates can look to a large number of job opportunities with few candidates available to fill the vacant positions. Reflecting this situation, salaries paid to candidates entering the mining industry are probably the highest of any offered to graduates in Canada today.

The Engineering Institute of Canada treats survey engineering as a sub-discipline of civil engineering. However, since 1960, the University of New Brunswick has had a Faculty of Surveying Engineering, and the history of Laval University's Faculty of Forestry and Geodesy — which offers a Bachelor of Applied Science degree in surveying — goes back to 1907. Both these schools offer study at the Master's and Doctor's level, as well as for the Bachelor's degree.

As is pointed out in the calendar of the University of New Brunswick, the special requirements of the survey engineer in geodetic and topographic surveying, property surveying, and construction surveying cannot be met by the usual civil engineering or forestry curriculum.

The Department of Surveying Engineering of the University of New Brunswick reports that graduates in surveying engineering will find specialized employment with photogrammetric mapping companies, prospecting and exploration companies, as consultant engineers, or with federal, provincial, or municipal survey organizations.

The position of the university graduate wishing to qualify as a land surveyor varies from province to province. The Canadian Institute of Surveying reports that, depending on his degree, the graduate will usually be exempted from the examination in elementary mathematics and physics and from part of his period of articles. In post-war years, the reluctance of the professional associations to grant a greater measure of recognition to university qualifications has acted as a serious deterrent to university graduates entering the profession. As a consequence, except in the province of Quebec, a relatively small proportion of Canadian surveyors are university graduates.

Recently however, the professional associations have become concerned about this situation. The sharp increase in university enrolment has caused a shortage of suitable non-university people capable of becoming surveyors. This coincides with increasing demands on the technical skills of surveyors.

The Canadian Institute of Surveyors estimates that each year up to 100 new university-trained surveyors can find employment in Canada. This year 22 graduated with first degrees. This should increase to about 38 in 1968, but the shortage will still be acute.

This shortage is reflected in starting salaries. In 1967, graduate survey engineers without further qualification received an average of over \$7,000.

The number of graduates of fine arts programs at the Bachelor's level is expected to increase by about 20 per cent to about 100 in 1968. Thirteen Canadian universities offer programs in fine arts—Alberta, British Columbia, Calgary, Dalhousie, Guelph, Manitoba,

## Survey Engineering

## FINE ARTS





McMaster, McGill, Mount Allison, Saskatchewan, Toronto, Victoria, and Sir George Williams. Five of these universities award the Bachelor of Fine Arts degree and the others, the Bachelor of Arts degree in Fine Arts.

The emphasis in these programs varies from practical or studio work to the analysis, evaluation, and history of art, although most contain elements of both and allow the student to specialize in one facet or another. At the graduate level, the University of British Columbia offers an M.A. degree in fine arts; Toronto, a Master's degree in the history of art, and Sir George Williams, a Master's degree in art education.

The majority of fine arts graduates become art teachers, mostly in the secondary schools, but some also at the elementary and university levels. A number of graduates are employed in museums and art galleries and, although these positions are becoming more and more numerous, they are increasingly requiring a Master's degree in the history of art. Art gallery work involves positions ranging from director and curator through docent, education officer, display technician, public relations officer, and business administrator.

Graduates may also be employed as art researchers, historians, librarians, and critics. Some also become practising artists or designers. The University of Manitoba offers a four-year diploma course, for example, primarily intended to train the student as a practising artist.

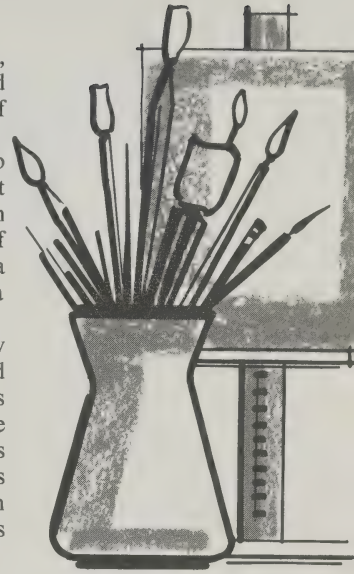
The Chairman of the Fine Art Department at Toronto suggests that salaries for art teachers are the same as for other specialists. Those for museum personnel are gradually rising but are not yet competitive with the salaries of comparable professions.

The increasing use of wood products in Canada has created a corresponding demand for foresters during the last several years. While the total graduating figures in this discipline seem to remain static at present, it appears that the total enrolment in forestry specializations is on the increase. The demand for graduates, then, will be similar to the previous year, where at least twice as many graduates could have been placed as received Bachelor's degrees.

Forestry and forestry engineering is offered in five Canadian universities—Toronto, Laval, British Columbia, New Brunswick, and Lakehead. New facilities will be opened at both Laval and the University of British Columbia in 1967, reflecting the increasing demand for forestry graduates. A new building for the Faculty of Forestry and Geodesy is being planned at Laval for 1969.

At Laval University, each of the three departments—planning and silviculture, ecology and pedology, and forest use and development—offers courses leading to the Master's and Doctor's degree. The University of New Brunswick and the University of Toronto also offer studies leading to the Master's degree in forestry. At Lakehead University, the first two years of forestry are offered, after which the student continues his studies at the University of New Brunswick.

The Dean of the Faculty of Forestry at the University of New Brunswick reports that a course is now offered leading to the degree of Bachelor of Science in Forest Engineering. It is a



## FORESTRY AND FORESTRY ENGINEERING



program sponsored jointly by the Faculties of Engineering and Forestry. At the University of British Columbia the degree offerings now include an M.Sc. for forest researchers with a non-forestry background. This university has also developed a forest biology honours program in the Faculty of Science, and there are plans of offering courses in forest recreation management and forest wildlife management in 1968-69.

The demand for graduates from the University of New Brunswick remains strong, the Dean reports. It appears that, of the 1967 graduating class of 32 students, 25 have permanent positions and several others are continuing their studies. British Columbia reports a brisk demand for its graduates.

The total graduating class of 1968 is expected to show a slight decline from the 123 students who graduated in 1967.

The continuing rise in the utilization of forest products has created a high demand for forest managers. One of the great contributors to forestry graduate positions is the increased use of the forest for recreational use. The basic forestry training with its emphasis on the biological and managerial aspects of forest control and development and the inclusion of social sciences in his training make the forester well suited to undertake responsibilities in these areas of forest use.

In the research field there are more openings than there are applicants. This field usually requires the Master's or Doctor's degree. A good deal of research and experimentation is required to provide the basic knowledge and the techniques for the effective and efficient handling of the forest.

The average starting salary for the graduate in forestry or forestry engineering is between \$550 and \$575 monthly. This is an increase of about 10 per cent over salaries offered to the 1966 graduating class.

Enrolments in the field of geography at Canadian universities are increasing rapidly. The Canadian Association of Geographers reports that 620 students were enrolled in honours geography programs in 1966-67, an increase of 220 over the preceding year. Similarly, enrolment at the graduate level increased from 450 in 1965-66 to 630 in 1966-67. The estimated number of graduations in 1968 is 130 Bachelors (honours), 145 Masters, and 20 Doctors.

The most popular areas of graduate research appear to be economic geography, geomorphology, and urban geography. Other branches of the discipline include cartography and agricultural, human, and physical geography.

The largest portion of honours graduates in geography finds employment in teaching at the secondary school level. Their special skills are also required in the publishing field, especially with educational firms, by government departments such as that of Energy, Mines, and Resources, and by industry. The federal and provincial governments, as well as private consulting firms active in the area of land use planning, urgently require specialists in this new field, according to the Director of the Institute of Land Use at Brock University. Geography graduates with higher degrees are in particularly great demand as university teachers or for senior government positions. In addition, a good knowledge of geography is also an asset in many more general administrative positions in business, industry, and government in Canada.

## GEOGRAPHY



Salaries in the federal public service, teaching, and the universities are comparable to those paid to graduates in other fields and are rising along with them.

## HISTORY

Enrolments in history in Canadian universities are increasing rapidly. In 1967 there were about 470 graduates at the honours Bachelor level, over 200 at the Master's level, and over 20 at the Doctoral level.

According to the Chairman of the History Department at Carleton University, the majority of graduates in history enter the teaching profession, at the elementary, secondary, or tertiary level. For a career in teaching at the secondary school level, the person with an honours degree has an advantage and the Master's graduate is becoming more common. A Master's degree is usually required to teach in junior colleges and the university teacher who holds such a degree is usually expected to be studying for his Ph.D. The Chairman of the University of Alberta's History Department points out that there is currently a particularly strong demand for specialists in Canadian history in junior colleges and universities throughout the country.

Many other opportunities exist for the history graduate. The large number of historical museums that are now developing in various parts of Canada require graduates to staff their human history sections, particularly as it relates to the development of Canada. A number of graduates are employed by the federal and provincial governments, especially in their respective archives. Those with Master's degrees, in particular, are in a favorable position to qualify for entry to the Department of External Affairs.

Since he has normally taken subjects outside his field, the graduate in history is well equipped to enter other occupations such as journalism, public relations, private archivist, researcher, and historian for very large private firms or other organizations, according to the Director of the Department of History at the University of Montreal. Other graduates use their training in history as a valuable stepping-stone to careers as lawyers, librarians, or clergymen.

Most Canadian universities now offer a Master's degree in history and about 20 award the Ph.D. degree. The more common areas of specialization are Canadian, American, and European history, but there is a growing interest in Chinese, Russian, and African history. Queen's University offers both a Master's and a Doctorate program in South African history and a Master's degree in Russian history. The University of Toronto offers a Doctorate in Asian history while Alberta has a Master's program in East Asian history and the University of British Columbia gives a Master's degree in Asian studies. This latter area of study includes the language and literature as well as the histories of countries such as China, Japan, and India.

## HOME ECONOMICS

For home economists, as for most other categories of university graduates, demand continues to outstrip supply. There are more vacancies than there are people to fill them. This is due as much to increasing opportunities as it is to expansion of existing fields.

For example, the Dean of the College of Home Economics of the University of Saskatchewan reports that there is a growing use of home economists as consumer consultants in retail outlets.

Here the home economist interprets store policy to customers and advises on all kinds of matters relating to their purchases.

The Canadian Home Economics Association divides the field of work for home economists into six areas—education, government service, business, social and welfare agencies, research, and dietetics. The last of these is rapidly assuming the status of a profession in its own right.

There is a shortage of home economics graduates for teaching positions at all levels from nursery school to university. Graduates are also needed to fill teaching positions in technical and trade schools and institutes of technology. A one-year course in education following the Bachelor's degree is necessary in most provinces to qualify as a specialist.

In government service, home economists are employed by federal departments such as Agriculture, Health and Welfare, and Fisheries. As well, home economists are employed as extension specialists, district home economists, and 4-H supervisors in all parts of Canada. Provincial health departments employ home economists as public health nutritionists.

Further opportunities are opening up in Canadian and foreign social improvement schemes for home economists who are specialists in family finance, nutrition, and management as well as experts in textiles, equipment, or the homemaking skills.

A pamphlet, *Home Economics*, produced by the University of Manitoba states that home economists in the business field are directly employed or consulted by manufacturers of food, furnishings, clothing, and textiles, and by department stores, advertising agencies, and the communications media. A number of interesting business careers are available to graduates in the clothing and textiles fields. Textile firms in Eastern Canada employ home economists to carry on education in textiles for consumers and sales people and to participate in their testing and research programs.

Sixteen Canadian universities offer degrees in home economics. These institutions graduated almost 440 home economists in 1967 and expect to increase this figure by 25 per cent in 1968.

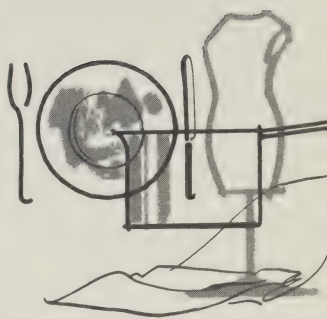
The universities of Alberta and Manitoba offer Master's degrees in home economics, while the University of Toronto has a Master's program in food science, and "l'Université de Montréal", in nutrition.

The Dean of the College of Home Economics of the University of Saskatchewan expresses the view that there is an international shortage of home economists with graduate degrees to fill teaching vacancies at the university level and for positions in research.

Starting salaries for home economics graduates in 1967 were substantially higher than in 1966, averaging about \$5,700 a year without further training.

As was mentioned, dietetics is assuming the role of a profession separate and distinct from home economics. It has its own professional association—the Canadian Dietetic Association—with its own standards of eligibility and a strongly defined code of ethics.

According to the Director of the School of Home Economics at the University of Manitoba, professional qualifications in dietetics include a degree in home economics or food science from a university where course content meets the requirements of the



## Dietetics

Association, plus a year of internship. The internship may be taken either after graduation or in three phases; two in the summers following the second and third years and the third phase after graduation. Membership in the Canadian Dietetic Association is based on the completion of the membership requirements of the various provincial associations.

Graduate degrees in dietetics and nutrition can be pursued in a number of areas of academic study.

Opportunities for employment are numerous and varied. The Quebec Dietetic Association reports that more than 60 per cent of Canada's dietitians work in hospitals administering food services, controlling budgets, preparing menus, supervising the purchase of food or equipment, and directing personnel. In addition, many in this group act as instructors, teaching nutrition to patients, nurses, and other personnel.

About 11 per cent administer collective food services in schools or restaurants or for large corporations. About 8 per cent are engaged in publicity and research for food product companies. Seven per cent are employed as nutritionists for private or government agencies, clinics, and health and social welfare services. Others participate in the planning of food service installations.

The Quebec Dietetic Association states that starting salaries of dietitians vary with experience and responsibility but are comparable to those of other professions requiring similar academic preparation.

## HOSPITAL ADMINISTRATION

The number of positions for hospital administrators is increasing in Canada not only because of the growing realization of the need for specially trained persons to fill these positions, but also because of the growth of large hospitals.

As hospitals grew more complex, it was recognized that methods borrowed from industry could greatly increase the efficiency of their operation and that hospital directors should be specially trained in order to utilize the newest concepts in management and administration. This kind of training will be even more essential in the future with the increase in automation and the use of computers in hospitals.

The hospital administrator plans, directs, and co-ordinates all of the hospital's activities in accordance with the policy of the governing board. He is the representative of the board to the patients, the medical staff, and the employees of the hospital.

The Director of the Graduate Institute of Hospital Administration at the University of Montreal predicts that within 20 years the directors of all large hospitals will be university graduates in hospital administration. At present there are over 1,380 hospitals in Canada and only some 250 graduates in hospital administration.

Three Canadian universities offer graduate programs in hospital administration. The universities of Montreal and Ottawa, with instruction in French and English respectively, award a Master's degree, while the University of Toronto grants a graduate diploma. The entrance requirement to any of these schools is a degree in arts, science, or medicine. Each course is two years in length combining one year of academic work with another of residence in an acceptable hospital in either Canada or the United States. The three schools graduate about 40 hospital administrators annually.



In addition, three other avenues are open to those interested in qualifying as hospital administrators. Both the Canadian Hospital Association and the College of Commerce, University of Saskatchewan, offer two-year correspondence courses, while the University of Montreal, through its extension department, offers in French a series of nine courses bearing on hospital administration.

While most hospital administrators find employment in general or special hospitals, usually at first as assistant administrator, others are employed with federal and provincial governments in the fields of public health education and administration and hospital insurance administration, with hospital associations, management consulting firms, and other health care organizations.

Starting salaries vary considerably depending upon the size and locality of the hospital and the administrator's basic qualifications. Administrators with degrees in medicine are likely to receive higher salaries than others.

The University of Manitoba offers a four-year program leading to the degree of Bachelor of Interior Design. Enrolment in the course is increasing rapidly with 30 graduates expected in 1968. Such graduates find employment right across the country.

The curriculum of the course is closely allied to that of architecture. Besides courses in drafting, graphic presentation, history of art, and building construction, the program of study includes analysis of period styles, colour theory, and furniture design.

Many graduates are hired either by architects or by interior design firms. Others make use of their skills in the interior studios of department stores, in the planning and interior design of offices, stores, or hotels, or with restaurant suppliers. A smaller number become teachers, either in high school art or university applied arts departments.

The field of interior design is open to both men and women and professional organizations exist in Quebec, Ontario, Manitoba, Alberta, and British Columbia.

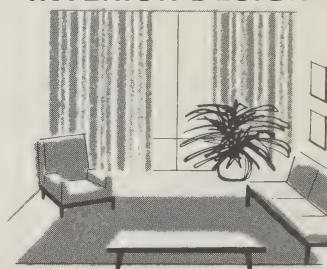
Two Canadian universities offer degree courses in journalism. Carleton University in Ottawa offers a three-year course leading to a Bachelor of Journalism degree. The University of Western Ontario, London, offers a four-year course leading to an Honours Bachelor of Arts degree.

Carleton as well has announced a new honours program in journalism beginning in the fall of 1967 which will permit students to combine the study of journalism with honours level work in arts, science, commerce, or engineering.

Both Carleton and Western have a one-year journalism program for graduates holding degrees in other areas, from their own or other universities. The Carleton program leads to a Bachelor of Journalism degree, the Western program to a Diploma in Journalism.

A third Canadian university, Mount Saint Vincent, at Halifax, offers a three-summer undergraduate journalism course leading to a diploma. The course is operated by faculty of the State University of Pennsylvania. Closely related to courses in journalism offered in Canada is a B.A. degree with a major in communication arts recently instituted by Loyola College. The courses

## INTERIOR DESIGN



## JOURNALISM

are aimed at those who wish to become writers, performers, critics, or teachers, and at those heading for careers in public relations, promotion, or advertising.

Students interested in freelance careers might consider the B.A. degree course in creative writing offered at the University of British Columbia. In this degree program, special instruction is given to students on the writing of radio, TV, and stage plays, and of novels, short stories, and poetry.

Newspaper, television, and radio are the major fields of work for journalism graduates, as reporters and editors. Other fields include public relations in business and industry, magazine writing and editing both in popular and trade magazines, and information services in federal government departments.

Starting salaries for journalism graduates are similar to those offered to graduates in pass arts and some honours courses, but vary considerably with the larger news media paying more. The Department of Journalism at the University of Western Ontario suggests that mobility in journalism is traditional, so that many beginners start on a small newspaper or a radio or television station and move within a few years to a larger one.

## LANGUAGES AND LITERATURE



There are very attractive opportunities available for graduates in English, French, and modern languages. The nature of these opportunities depends to some extent on the native language and specialization of the graduate.

Those students who take a specialized degree in their native language, English or French, are in great demand as high school teachers. To prepare for teaching at the university or college level, the student must continue his studies at a recognized graduate school to obtain the M.A. or Ph.D. degree. Speakers of English who specialize in that language and speakers of French who specialize in their language will find their training a valuable preparation for careers in journalism, book publishing, editorial work, librarianship, and radio or television writing or production, according to the Chairman of the Department of English at the University of Toronto. In addition, many branches of the legal profession, business, and the public service give special consideration to graduates in their native language.

The demand is probably even greater for those graduates who specialize in a language other than their native tongue. Many of these are also employed in teaching. All of the English-speaking parts of the country are promoting and expanding the study of French with the result that a serious shortage of better-qualified teachers has developed. Similarly, according to the Head of the English Department at the University of Montreal, there is a particular need in Quebec for teachers of English as a second language. These may be native speakers of English who know French well or native speakers of French who have completely mastered English, both of whom should also have studied linguistics.

The federal public service also hires many graduates who have specialized in a language other than their native tongue, especially for its trade, immigration, and diplomatic missions abroad. Businesses which operate on an international scale also require such graduates. Those who become particularly proficient at two languages, especially English and French, are in great demand as

translators and interpreters especially by the federal government but also by many other national organizations.

Graduates in languages with an honours degree received starting salaries of about \$6,500 in 1967.

Canadian faculties of law report a continuing shortage of young people entering the study of law. The Dean of the Faculty of Law at the University of Alberta notes that the demand for articulated students and young lawyers in Alberta has exceeded the numbers graduated by Alberta's Faculty of Law for about 15 years. The Dean suggests that this will probably continue to be the situation in the near future though the number of graduates is increasing and the demand may be met to a greater extent in coming years.

The Law Society of British Columbia points out as well that an increasing enrolment in the Faculty of Law at the University of British Columbia will no doubt assist in lessening the gap between supply and demand of law graduates in that province.

In Ontario, there is a shortage of young persons entering the profession of law, particularly those with talents and aptitudes that can be developed for advocacy, according to the Dean of Common Law at the University of Ottawa. With the launching in 1967 of a provincially-supported legal aid plan, the need for barristers or court lawyers, particularly at the criminal bar, will soon become apparent. Ottawa's Dean suggests a need for more small and medium-sized law schools and better students with the highest motivations.

Canada has at present 15 universities offering the study of law, including both a Faculty of Civil Law and a Faculty of Common Law at the University of Ottawa. A total of 975 law school graduates is predicted for 1968.

Qualification as a lawyer in one province in Canada does not qualify a person for practice in any other province, although the governing bodies of the profession in the common law provinces have adopted fairly uniform standards of admission from one province to another. Quebec, governed provincially under civil law, does not conform in detail to these uniform standards. Admittance to the practice of law in Canada is usually granted following two or three years of university pre-legal education, a Bachelor of Laws degree from a Canadian law faculty, and a period under articles of clerkship with a practising member of the profession.

Some lawyers devote themselves exclusively to specialization in one facet of the law such as corporation law, tax law, patent law, or labour law. This specialization, however, is more evident in the larger centres, for rural area lawyers must usually conduct a more general type of practice. On the other hand there are extremely few lawyers outside of corporate positions who can confine themselves exclusively to one type of work. Those who may be said to specialize have simply concentrated on a particular aspect of the law and in this fashion have become expert without completely withdrawing from the other fields.

Lawyers may find employment in the law departments of industrial and mercantile companies as well as with governmental agencies and departments where the complexity of the problems facing government and industry make it particularly desirable that

## LAW



the legal implications of any proposed action be properly understood.

The Dean of the Faculty of Law at the University of Alberta reports an increasing need for law teachers, and considers it necessary for more graduates to take graduate work than have done so in the past if the schools of law are to maintain and to add to their present enrolments.

## **LIBRARY SCIENCE**

Qualified librarians have excellent opportunities for professional growth and advancement in Canada. It has been estimated that some 500 additional librarians will be needed annually over the next few years to meet the increased demand, particularly in school libraries and to a lesser extent in university, public, and special libraries.

The Director of the School of Library Science at the University of Toronto suggests that there is a serious shortage of librarians with advanced academic qualifications, good library experience, and with an interest and ability to undertake teaching and research at the university level. The chief sources of librarians with advanced degrees have been the Master of Library Science programs at Toronto and McGill, and the Doctoral programs at American library schools. These graduates are few in number and competition for their services is keen.

There are three library schools in Canada accredited under the standards of the American Library Association as endorsed by the Canadian Library Association: McGill University, University of Toronto, and the University of British Columbia. One other library school, the University of Ottawa, has applied for accreditation and the library school at the University of Montreal is preparing to do so. In 1966, the University of Alberta announced the creation of a library school at Edmonton, and a new library school has just been established at the University of Western Ontario. Of these, McGill, Ottawa, Western Ontario and Toronto offer courses leading to a Master of Library Science degree. The basic qualification for the professional librarian is a Bachelor's degree in arts or science plus one full year of library training leading to a B.L.S. degree at any one of Canada's library schools.

A total of 314 Bachelor's and 63 Master's in library science graduated in 1967.

Recent developments in the fields of automation and data processing furnish special opportunities in librarianship to students with a background in mathematics, logic, semantics, or linguistics. The University of Toronto reports a special feature of its library school to be the existence of a data processing laboratory, to be used actively in conjunction with courses at the B.L.S. and higher degree levels. A major developmental objective of the school is to provide equipment where feasible for experiments in testing library systems and in the mechanization of library operations.

There are many areas of specialization within the profession of librarian. They include reference librarians, who are experts in finding information and answering questions; cataloguers and classifiers, who are responsible for cataloguing and classifying books so that related information will be kept together on the shelves; circulation librarians; children's and young people's librarians; regional and county librarians; school and university





librarians, and special librarians who serve the particular needs of one organization or group.

The Director of the School of Library Science at the University of Toronto notes that libraries are becoming more specific in stating their requirements for librarians. Employers are now asking for a person to catalogue Japanese materials, for a person competent in Slavic languages to do reference work, or for a person with a science degree to work in a special library.

Average starting salaries for library science graduates have increased by 91 per cent in the last ten years. In 1967 they averaged \$6,250 for Bachelor degree graduates, and \$7,000 for those earning Master's degrees.

## LINGUISTICS

The study of linguistics, the science of language, is growing rapidly in Canada as elsewhere. The reasons for this are not hard to find. Language, effective communication, is basic to all of man's activities and, as a result, the study of language touches upon many other disciplines.

To the teacher of languages, the new knowledge of language structure that linguistics now provides is an invaluable aid in teaching and research. Especially important in the modern world are the rigorous techniques for the teaching of English as a second language in many parts of the world.

To the anthropologist working in the field, the ability to record, analyse, and acquire a hitherto unrecorded language, which linguistic science provides, is a basic tool. The exciting new discipline, psycholinguistics, which brings together psychological and linguistic techniques in an attempt to understand the working of man's mind through language is now attracting many students.

The Head of the Department of Linguistics at the University of Victoria suggests that the intending linguist should combine the theoretical study of the science of language with another subject. Linguistics and English, linguistics and languages, linguistics and anthropology, linguistics and mathematics, and linguistics and psychology are all suitable combinations. With such combinations linguists are equipped to teach in schools and universities, to work in the government service as translators, to enter the science of industry in the field of communication engineering, or to teach English overseas.

Most Canadian universities now offer individual courses in linguistics and an increasing number offer degrees in this discipline. The latter include Alberta, British Columbia, Victoria, McGill, Simon Fraser, Toronto, Montreal, and Laval. All but Toronto, which awards only the M.A., offer degree programs at both the undergraduate and graduate level. The rapid expansion of university programs in linguistics is creating a demand for teachers in the field which is very difficult to fill.

Laval University has recently been awarded a grant of \$400,000 by the Ford Foundation to establish an international centre on bilingualism. The centre will engage in research on the linguistic factors in second-language learning and use.

## MATHEMATICS

For many years now, the number of mathematicians available in Canada has been less than the number needed. Some 700 mathematicians (from the rank of assistant professor up) are employed in the universities and colleges of Canada; about 150 are employed



in the institutes of technology. It is difficult to estimate the number of teachers of mathematics in the high schools but it is in the order of 7,000 to 8,000. No reliable estimates of the number of mathematicians employed in business, industry, and government are available. As the use of computers becomes more general, it is anticipated that the number of mathematicians in government and industry will double over the next five years.

The number of students in Canada obtaining an honour's degree in mathematics in 1967 was slightly over 200 and should increase to over 300 in 1968; over 200 are expected to receive a Master's degree in mathematics, and about 60 to obtain a Ph.D. in 1968. It is unlikely that the number of Ph.D.'s graduating in the next five years will be adequate for the needs of the universities even if all of them assume posts in university teaching. Eighteen Canadian universities now offer a Ph.D. program and 24 a Master's program in mathematics. The University of Waterloo has recently established the first Faculty of Mathematics in Canada and offers a Bachelor's degree program on a co-operative basis.

The Canadian Mathematical Congress reports that the spectrum of opportunities for employment in mathematics is extremely wide. Many graduates go into teaching. At the present time there is a great shortage of high school teachers who are adequately trained in this subject, and while this avenue is open to graduates with a major in mathematics, it is preferable to have an honours degree. For teaching in institutes of technology and junior colleges, a Master's degree is usually required. A Ph.D. degree or equivalent is normally a prerequisite for employment as a university professor of mathematics who is also expected to be a productive scholar.

There are many opportunities for mathematics graduates in industrial and governmental research, and business, industry, and government require graduates in the fields of computing, statistics, and actuarial work. About 60 assurance companies in Canada employ 360 actuaries. Eight universities in Canada offer courses in actuarial science—British Columbia, Manitoba, Western Ontario, Waterloo, Toronto, Queen's, McGill, and Laval.

In choosing a career in mathematics, the nature of the occupation and the satisfaction to be obtained from it are frequently more important than salary. Nevertheless, starting salaries for mathematics graduates have risen more sharply in recent years than those in almost any other discipline. The honours graduate of 1967 received about \$560 per month. Salaries for high-school teachers with a Bachelor's degree in mathematics range upward from about \$6,000 a year. Salaries for university professors in this discipline begin at about \$9,000 and range up to \$25,000.

Future prospects for medical doctors in Canada appear to be excellent. A growing population will continue to swell the demand for all types of medical services.

The Canadian Medical Association feels that the supply of physicians must increase at a rapid rate if Canada is to meet the requirements of her population for health services in the future. The Association estimates that by 1975, 1,500 new doctors a year will be necessary just to maintain the present 800:1 patient-physician ratio.

## MEDICINE

As well as general or specialized practice, the qualified practitioner may enter the fields of public health and industrial medicine, prevention and control of disease, health education, nutrition and sanitation improvement, or accident prevention.

A growing area of clinical practice is the rehabilitation of disabled persons. This is done by specialists in various fields, but particularly medical specialists in physical medicine and the physical and occupational therapist, who work as a team with specialists in other fields as well as with the family physician.

To meet the expected demand, existing medical schools have instituted expansion programs and steps have been taken to start four new schools. The University of Sherbrooke admitted its first class in September of 1966, McMaster expects to open its doors in 1969, and both Memorial University and the University of Calgary hope to admit their first classes in 1970. This will bring to 16 the number of Canadian universities offering the Doctor of Medicine degree.

In addition to the M.D. degree, five universities (Alberta, Manitoba, McGill, Saskatchewan at Saskatoon, and Toronto) offer Bachelor of Science in Medicine degrees for students in the M.D. program. L'Université de Montréal offers Master of Science and Doctorate degrees in several areas of medical study.

Admission standards of medical schools are high. Most universities require at least two years of university work with concentration in the basic sciences before entering the four-year course of the faculty of medicine while others require a completed undergraduate degree. Personal suitability as well as high academic achievement is usually a prerequisite for admission. Strong dedication and personal involvement must be combined with scientific objectivity for scholastic and professional success.

Following graduation and a one-year internship, doctors may work toward the specialist examinations of the Royal College of Physicians and Surgeons. The required three to five years are usually spent in hospital training at improved salaries.

After completion of internship and specialist training, most medical doctors enter private practice. However, for those who choose to work for an employer, rewards are high. Starting salaries in recent years have ranged from \$10,000 to \$12,000.

There has been rapid growth in medical research in Canada during the past few years. The enlargement of existing medical schools and the creation of new ones have greatly improved opportunities. The federal government has provided a one-half billion dollar fund for the construction of teaching and research facilities for the health professions. As well, \$3 million has been added to the fund of the Medical Research Council. This organization has increased its research grants and initiated new scholarships and fellowships.

Support by private and provincial agencies has also increased and the increase is expected to continue. The Dean of Medicine of Dalhousie University feels that the concern which has been expressed in recent years concerning lack of funds for Canadian medical research has been largely obviated by these recent additions. Medical research in Canada now, even more than formerly, provides rich opportunities, not only for medical doctors but also for graduates in the social and pure sciences as well.

There exists in Canada to-day an attractive, rewarding future for the professionally-qualified musician. The College of Music at the University of Western Ontario suggests that this improved status for the musician has been paralleled by the development of the North American-type university school of music which combines a liberal arts education with professional music training.

Twenty-five years ago, this type of musical education was not available, but there are now 20 universities across Canada which offer major programs in music. The Bachelor of Music degree in performance is now offered by such institutions as the universities of Toronto, British Columbia, McGill, Western Ontario, Manitoba, and Saskatchewan. The University of British Columbia also offers the Master of Music degree in performance (voice, piano, and any orchestral instrument). The universities of Alberta and Toronto also give a Master's degree in music, and a doctorate program is offered at Toronto, Laval, and Montreal. According to the Head of the Department of Music at British Columbia, the Bachelor of Music degree is basic to success in almost any musical area if world-wide competition is to be met. The Master of Music degree is now a minimum requirement for teaching in most Canadian university schools of music, while the doctorate is increasingly common.

In spite of the remarkable growth in music education, Canadian universities are still unable to graduate sufficient personnel to meet the needs of our society. This imbalance in the supply and demand has placed the music graduate in a most favourable position.

The Head of the School of Music at the University of Manitoba reports that the greatest career opportunities for graduates in music are in music teaching, mostly at the elementary and secondary school level. In order to teach, graduates must usually take a year of teacher training in addition to the Music degree. Some graduates as well become private music teachers where the value of a music degree is becoming more and more recognized.

There are excellent opportunities for those who hold advanced degrees in music to teach at the university level where, in recent years, the shortage has been so acute that some institutions have been compelled to recruit their entire faculty from outside Canada.

Opportunities within the performing arts have improved the career of the performer. Radio, television, sound pictures, opera, symphony, ballet, theatre, and various other media are providing an expanding source of employment. In many cases, performance is coupled with teaching or some other responsibility in the field of music with considerable improvement in security and remuneration.

In addition to attractive careers in teaching and performing, there are many other related areas. Positions in church music, music therapy, and music library are examples. Within the music industry, persons with a thorough musical training are offered employment as editors, composers, arrangers, managers, producers, and consultants. There are also many opportunities in the broadcasting field both in arranging and conducting and in the program departments of radio stations and television studios and networks.

Starting salaries in teaching are similar to those offered in the other disciplines. With regard to other positions, salaries will vary





according to the experience, qualifications, and the artistic excellence of the individual.

Canadian schools of nursing are becoming increasingly university-oriented. This is consistent with recommendations of the Canadian Nurses' Association and the Hall Royal Commission on Health Services.

The Hall Commission report recommended the establishment of ten additional university schools to meet the demand for better-educated nurses in Canada. In line with this suggestion, Memorial University has established a four-year course leading to a degree in nursing and the University of Moncton has recently added a nursing school. A number of universities have also changed their nursing pattern to an "integrated" program for the degree. There are now 21 universities with established schools of nursing, 19 of which offer a Bachelor's degree. The Master's degree is offered at Western Ontario, McGill, and Montreal.

An interesting development in Saskatchewan is the transfer of nursing education from the Department of Health to the Department of Education. It is the first province to make this transfer which involves a substantial curriculum revision, following another Hall Report recommendation. The School of Nursing at Dalhousie University has established a new program in outpost nursing which is unique in North America.

The ratio of professional nurses in Canada is one per 188 population which is a more favourable situation than the minimum of one nurse per 200 population recommended by the International Labour Organization. However, these nurses are not spread in a uniform pattern across the country, and in rural areas there remains a very serious shortage. There is also a particular shortage of psychiatric nurses and of those with advanced education to assume senior positions in nursing education, practice, and research.

Two new developments which tend to alleviate the shortage of nurses to some extent are the establishment of an increasing number of diploma programs at junior colleges and technological institutes and the entry into the profession of an increasing number of men.

The majority of nursing graduates find employment in hospitals, but many are employed in doctors' offices, in private practice, in government agencies, in the armed forces, or with home-visiting organizations such as the Victorian Order of Nurses. Nurses are also employed by international agencies such as the Red Cross to assist in the organization and development of health services in foreign countries.

Starting salaries for nurses vary considerably from one province to another as well as with training and responsibilities, but they are improving steadily.

Occupational therapy has clearly demonstrated its value as an important factor in the treatment of the mentally and physically handicapped.

The employment outlook for the student entering this profession is excellent. There is at present a critical shortage of occupational therapists, and with the ever-increasing demand for qualified

## NURSING

## OCCUPATIONAL THERAPY

personnel in rehabilitation services, the Canadian Association of Occupational Therapists reports little likelihood of these vacancies being filled in the foreseeable future. Membership figures for the Association indicate the number of gainfully-employed occupational therapists in Canada in 1966 as 574 women and 24 men.

Six universities offer courses in occupational therapy—British Columbia, Alberta, Manitoba, Toronto, Montreal, and McGill. The course at Montreal is for bilingual students only. Courses at Toronto, British Columbia, and Alberta are combined with physical therapy, and graduates of these three courses are qualified to practise in both disciplines. The University of British Columbia offers a four-year course leading to the B.Sc. degree in Rehabilitation, McGill University offers a three-year course leading to the Bachelor of Occupational Therapy degree, and the University of Manitoba offers a degree course as well as a three-year diploma course in occupational therapy. The courses offered at the other universities lead to a diploma.

A school of rehabilitation medicine, offering diploma courses in physical therapy and occupational therapy, and, after 1970, degree programs in both fields, is to be established at Queen's University. The three-year diploma course was introduced in the fall of 1967, and enrolment will be limited to 50 students for the first three years.

After graduation and completion of the internship required for registration in the professional association, the therapist may then seek employment in a wide variety of fields. These include general, psychiatric, and convalescent hospitals; hospitals for the chronically ill; rehabilitation centres; cerebral palsy clinics; Workmen's Compensation clinics; tuberculosis sanatoria; homes for the aged, and schools for the handicapped.

Though occupational therapy is definitely established as an important profession for women, there are increasing opportunities and demands for male therapists. Supervisory, administrative, and teaching positions are opening up rapidly with the expansion and development of hospital departments and training facilities. As well, there are many opportunities for pioneering, for experimenting, and for developing the theories and practices now in use.

As a member of the rehabilitation team, the occupational therapist works closely with the physician, nurse, physical therapist, speech therapist, psychologist, social worker, and other specialists according to the particular needs of the individual patient.

According to the Canadian Association of Occupational Therapists, salaries paid to occupational therapists are comparable to those of other professional personnel with similar educational qualifications.

## OPTOMETRY

There are two optometry colleges in Canada, the College of Optometry of Ontario in Toronto where instruction is in English, and the School of Optometry affiliated with the University of Montreal with instruction in French. The former requires Ontario Grade 13 or its equivalent for admission to its four-year course and awards the Doctor of Optometry degree. The latter requires completion of the B.A. or the second year of the B.Sc. in biology or its equivalent for entrance to its three-year course leading to the L.Sc.O. degree (Licentiate in Optometry). There are at present



about 75 students enrolled at the Montreal school and 100 at Toronto. Before being eligible to practise, the graduate of either school must pass provincial board examinations, except for graduates of the University of Montreal who wish to practise in Quebec.

The optometrist provides complete vision care which will enable the patient not only to see clearly but also to see with comfort and efficiency. The training given enables the optometrist to ascertain the presence of refractive errors and to adapt lenses to correct them. Optometrists as well investigate the presence of abnormal conditions in focusing and adjusting the fixation of the eyes and adapt suitable remedial measures. Pathological cases are referred to an oculist or ophthalmologist. The optometrist's training also includes instruction in adapting lenses, prisms, contact lenses, subnormal vision devices, orthoptic training, or co-ordinating exercises to correct, remedy, or relieve the effect of any defect or abnormal condition of the eye or of the two eyes in associated vision. The College of Optometry of Ontario estimates that 70 per cent of the Canadian public relies on optometrists for complete vision care.

While most optometrists maintain general practices, there are areas of specialization. Some concentrate on child-vision or school-vision problems while others prescribe and fit contact lenses, telescopic, and low-vision aids for the nearly blind. Optometrists practising in an industrial area may advise on such matters as industrial safety, illumination, or industrial vision. Teaching, research, and highway safety are other areas of work.

The heads of both schools of optometry emphasize that optometrists and optometrical services are increasingly in demand and are concerned that the lack of adequate facilities does not permit the enrolment of a larger number of students. This shortage of optometrists is reflected by the large number of partnerships developing, the increasing case-loads, and the attractive starting salaries for new graduates in employed positions.

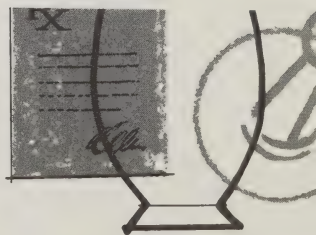
Eight universities in Canada maintain colleges or schools offering degree courses in pharmacy (Alberta, British Columbia, Dalhousie, Laval, Manitoba, Montreal, Saskatchewan, and Toronto). All these universities offer advanced studies at the Master's and/or Doctorate level.

Enrolment in the Canadian colleges of pharmacy for 1966-67 totalled approximately 1,100 men and 700 women in the undergraduate course. The Dean of the Faculty of Pharmacy at Laval University reports that an increasing number of pharmacy graduates are proceeding to graduate degrees, with 70 men and 20 women pursuing graduate studies in Canada in the academic year 1966-67.

The Canadian Pharmaceutical Association notes that the graduating class of 1967 showed no increase over 1966, but indications are that the 1968 graduating class will be about 10 per cent larger than that of 1967.

The percentage of women enrolling in colleges of pharmacy increased 20 per cent over 1965-66 and now reaches upwards of 50 per cent in some Canadian colleges. The Pharmaceutical Association reports that because of the increasing number of women currently registering in pharmacy colleges, and assuming

## PHARMACY



a relatively short female working life, prospects for employment in pharmacy in all its areas for the next several years look extremely bright.

The unfilled demand for graduates in all areas of pharmacy including retail, hospital pharmacies, industry, and government laboratories is increasing at a somewhat faster pace than is the supply of pharmacists. The demand for candidates with graduate degrees, both Master's and Doctor's, far exceeds the supply for academic positions and for industry in particular.

Almost 80 per cent of new graduates find employment in the retail field. Many graduating pharmacists however, particularly women, find positions in hospitals and medical service areas as well as with pharmaceutical companies. Government agencies, both federal and provincial, and including the Armed Forces, are also requesting more pharmacists to fill their needs.

The increased role of federal and provincial governments in public health programs has created additional opportunities for pharmacists in analytical and toxicology laboratories and in administrative positions as government inspectors and health supplies officers.

Starting salaries for new pharmacists continue to be among the highest offered to all Bachelor graduates and reflect increases equal to or greater than most disciplines. A 5 to 10 per cent increase in salaries between 1966 and 1967 was general.

## **PHILOSOPHY AND RELIGIOUS SCIENCES**

Philosophy is one of the oldest established disciplines, and degree programs in this subject are offered in almost all universities. Most major universities also offer graduate programs at the Master's level and many now present full Doctoral programs.

The academic study of religion has frequently been included in philosophy programs but has recently been given the status of a separate department awarding a Bachelor's degree at several universities including McMaster, British Columbia, Sir George Williams, Carleton, Queen's, and Manitoba. McMaster offers a Master's and a Doctor's program in religious sciences as well.

The study of religion, as distinguished from theology, includes an examination of the history, literature, and thought of all major religions in the world, of the theories on the origin and nature of religion, and of modern criticisms of religion and modern religious movements.

The study of philosophy includes the history of ideas, logic, epistemology, ethics, philosophy of science, philosophy of religion, metaphysics, social and political philosophy, linguistic analysis etc.

Neither philosophy nor religion is a vocationally oriented course leading to a specific job or career. Rather, both offer a broad, liberal education which provides a useful background for many types of endeavour. The graduate may go on to professional training in fields such as theology, social work, and law or to graduate work in either philosophy or religion with the intention of becoming a university teacher.

Employment opportunities for the Bachelor's graduate exist in library or publishing work in which a knowledge of religious and philosophical books is required, in social work, journalism, the civil service, many types of business, creative writing, or criticism. Private educational institutions often require graduates to teach in the area of comparative religion and since many students take







## PHYSICAL EDUCATION

a joint honours program, they may be hired as secondary school teachers.

Twenty-six Canadian universities offer courses leading to professional degrees in physical education, health education, and recreation.

Graduate work is now being offered at four Canadian universities—Alberta, British Columbia, Saskatchewan, and Western Ontario—and the Dean of the Faculty of Physical Education at the University of Alberta suggests that two more universities are seriously studying the possibility of offering the Master's degree in physical education. In addition, the University of Alberta has announced the establishment of a Ph.D. degree course in physical education, with classes to begin in the fall of 1967. Due to the establishment of these programs, an increasing number of graduates are going on to a second degree in Canada. Opportunities for such graduates are numerous and include advanced teaching, university teaching, recreation, and work in various government departments. It is possible for graduates to go on towards second degrees in research carried on in departments of universities other than physical education, such as medicine, physiology, and psychology.

Financial assistance available from the National Advisory Council on Fitness and Amateur Sport to both the undergraduate and graduate programs is providing the opportunity for many students to continue their education in the field. The number of students engaged in graduate programs has increased considerably over the number involved in 1966.

Future growth in enrolment in the physical and health education courses in Canada should be large. It is estimated that only about 15 per cent of all physical education teachers in Ontario have physical education degrees, and pressure is growing on both the elementary and secondary school levels for teachers and supervisors with proper degrees. Female physical education teachers are particularly needed, and there are a considerable number of opportunities available for women who have taken graduate work. It has been suggested that the time is fast approaching when Doctorate degrees will be required for university positions. Junior colleges, large high schools, and government positions will require the Master's degree.

The expanding program of the Fitness and Amateur Sport Directorate has resulted in a number of opportunities for graduates as directors of programs in the different provinces as well as at the national level. A large part of the budget of the National Advisory Council is apportioned to research in the field of physical education, recreation, and fitness.

An increasing awareness and interest in the health aspect of athletics and physical education has resulted in an increased demand for practitioners who are knowledgeable and are qualified to administer exercise programs for various age groups under different conditions.

There is a re-emphasis of physiology of exercise and training, and more communities are seeking professionally trained personnel to serve as directors and supervisors of recreation. The universities of Alberta, British Columbia, and Ottawa are presently providing studies leading to degrees with specialization in recreation.

There continues to be a great shortage of physicists in Canada in spite of an increasing enrolment in this field. Over 200 honours physics graduates are expected to graduate in 1968, an increase of about 22 per cent over 1967. In addition, some 125 graduates are expected from combined mathematics-physics programs.

The majority of Canadian universities offer courses in physics at the honours Bachelor level and at least twenty of these offer graduate work in this discipline. A large proportion of physics graduates proceed to graduate training which is considered essential for advancement in the profession.

The demand for physicists exists in a wide variety of fields. There is a need for many more as high school physics teachers as well as in industrial and government laboratories and university teaching and research. The principal government agencies requiring physicists are the National Research Council, Atomic Energy of Canada, and the Defence Research Board. In industry, career opportunities are plentiful in the fields of electronics, data processing, metal refining, oil prospecting, communications, and power development. A Ph.D. degree is increasingly required for a career in university teaching.

Two expanding fields in physics are astronomy and meteorology and graduates in these fields are employed by federal government agencies. Degrees in astronomy are now offered at the universities of Toronto, Victoria, and Western Ontario.

Honours graduates in mathematics-physics, physics, or engineering physics are hired by the Meteorological Service of Canada. During their first two years of employment, graduates are required to attend the Master's degree course in meteorology at the University of Toronto or McGill University.

Salaries for graduate physicists are consistently improving and compare favourably with those of other science disciplines.

The important role of physiotherapists in the rehabilitation of the physically handicapped disabled by disease or accident involving the function of nerves, muscles, bones, and joints has brought about a very great demand for their services.

Nine Canadian universities offer courses in physiotherapy or in physical and occupational therapy leading to diplomas and/or degrees. The University of British Columbia offers a B.Sc. degree in rehabilitation and McGill University offers the B.Sc. degree in physiotherapy, both of which are four-year courses. As well, McGill offers a three-year Bachelor of Physical Therapy degree, and Manitoba offers the same degree course, but of three years' duration. In addition, eight universities offer two- or three-year programs leading to a diploma in physiotherapy. These are the universities of British Columbia, Alberta, Saskatchewan, Manitoba, Toronto, and Montreal and Laval and Dalhousie universities.

A school of rehabilitation medicine, offering diploma courses in physical therapy and occupational therapy and, after 1970, degree programs in both fields, is to be established at Queen's University. The three-year diploma courses will be introduced in the fall of 1967.

About 400 graduates emerged from the nine schools in 1967, but the Canadian Physiotherapy Association suggests that this is not sufficient to meet the demand which continues to grow each year with the expansion of services.

## PHYSICS

## PHYSIOTHERAPY







The work of the physiotherapist is, under medical direction, to help to maintain or restore physical function to an injured or disabled person. Physiotherapy is available to the physically handicapped in hospitals and medical centres in all parts of Canada, and most therapists are employed by these institutions. Physiotherapists also work in private practices, in special schools for crippled children, in health programs sponsored by municipal and welfare agencies and in such organizations as the Canadian Arthritis and Rheumatism Society.

Physiotherapists, after at least three years' experience in the treatment field, may proceed to teacher courses to prepare themselves for staff appointments in the university schools of physiotherapy. These courses are available at McGill University and at the universities of Manitoba, Montreal, and Toronto.

Salaries for physiotherapists with Bachelor degrees start at approximately \$5,500 per annum and rise to \$10,000 for supervisory categories.

Enrolments in political science at Canadian universities are rising rapidly, but employment opportunities remain very bright. About 230 honours graduates were produced in 1967 and the anticipated figure for 1968 is 340 graduates.

The Head of the Political Science Department at the University of Calgary emphasizes the fact that there are insufficient numbers of political scientists to fill this country's needs and that job opportunities are numerous. The public service of the federal government is actively recruiting graduates in this field, particularly for its foreign service assignments. A considerable number of opportunities exist in provincial and municipal government services, in the communications field, and in various areas of social research. Political science graduates, especially those with strong records in public administration courses, are in demand from the private as well as the public sector of the nation's administrative management group.

There is a high demand for those with graduate degrees in political science as university teachers. The Head of the Political Science Department at Carleton University reports that it is difficult to keep Ph.D. students at the university until they complete their theses. Job offers are so plentiful that it appears to be easy to launch a career of university teaching at a number of universities on the strength of having completed the Ph.D. comprehensive examinations. For teaching at junior colleges the M.A. degree is required.

Almost all universities now offer a Bachelor's program in political science, 20 offer a Master's program, and ten award the Ph.D. in this discipline: Alberta, British Columbia, Carleton, Laval, McGill, Montreal, Queen's, Saskatchewan, Toronto, and Western Ontario. Dalhousie reports plans to institute a Ph.D. program in 1968.

Most universities offer courses at both the undergraduate and graduate level in political thought; Canadian, British, American, and comparative government and politics; political behavior; developing areas; public administration, and international affairs. In addition, a number of Canadian universities offer special programs in political science or interdisciplinary programs connected with it. Carleton has interdepartmental schools of inter-

## **POLITICAL SCIENCE**

national affairs, public administration, and Canadian studies that prepare students for careers in government, universities, business, and journalism. Alberta has a Centre for International Studies, McGill maintains a Centre for Developing Area Studies, and Queen's has institutes of local government and of intergovernmental relations.

Waterloo and Glendon College of York University are two schools that offer an honours' program in political science or public affairs combined with French. Queen's and Alberta have advanced programs in political behavior, and Windsor offers an inter-disciplinary honours program including Canadian-American relations.

An increasing number of universities are offering specialized work in Soviet or Slavonic studies; Toronto and British Columbia also specialize in Asian studies; Toronto and McGill in Islamic studies, and Montreal in African studies.

Starting salaries for 1967 Bachelor graduates in political science averaged about \$520, a substantial increase over previous years.

## PSYCHOLOGY

The graduating class in honours psychology in Canada again shows an increase of almost 50 per cent over the figure for 1967.

Like some other disciplines, there are also a fairly large number of students who obtain a grounding in psychology by choosing a major in this subject in a pass B.A. program. The majority of Bachelor's degree holders who concentrate in psychology do not find employment as psychologists, the Chairman of the Department of Psychology at Carleton University reports. A large number of these obtain employment in various para-psychological positions in welfare organizations, correction institutions, or in personnel work.

The Canadian Psychological Association reports that the higher degree is now specified as a requirement for professional registration in most provincial acts which have been passed. With the expiration of a clause in the Ontario Psychologists' Registration Act in June, 1966, it is now mandatory for a candidate for registration to possess the Ph.D. degree and one year of related experience.

More than 20 Canadian universities offer graduate studies leading to either the Master's or the Doctor's degree in psychology.

The largest number of psychologists are employed in mental hospitals, universities, and clinics, but there are numerous avenues of employment open to those who are professionally qualified. Industry is now turning to the graduate in psychology in the selection, training, and placement of personnel. Some personnel work does not necessarily require a higher degree. Government and private organizations quite often employ the student with a major in psychology, or the honours degree in that discipline, for personnel work.

Vocational and educational guidance offers rewarding employment to the psychology graduate who chooses this field. This is shown in the increasing demand for the qualified psychologist by school systems.

In response to the demand for counsellors, degree courses in guidance and counselling will be introduced in the University of Manitoba's Education Faculty for the first time in 1967.

It seems that the greatest demand, then, is in the applied field of psychology. The University of Waterloo states that graduates in

programs of applied psychology can expect to find excellent career opportunities in a number of fields and that the need for such specialists exceeds the number currently being trained.

Carleton University reports that the supply of Canadian psychologists available to that university is quite inadequate and this probably is true of most Canadian institutions of higher learning.

The average starting salary for the 1967 graduate with a Bachelor's degree was \$505 a month, and the holder of a Master's degree received approximately \$570 a month in 1967.

With the rapid growth in government services and the increased responsibilities of public employees has come the realization that public administrators can profit from a special type of training. Most graduates in this field are already or eventually employed either by the federal, provincial, or municipal governments.

Carleton University's School of Public Administration offers four different programs in this discipline: a Bachelor of Arts with Honours in Public Administration; an undergraduate certificate in Public Service Studies; a graduate Diploma in Public Administration; and a Master of Arts in Public Administration. The University of Toronto also offers a Master's degree program; Dalhousie hopes to establish such a program in 1968, and most Canadian universities give a course or courses in public administration in their departments of political science. York University offers a part-time program leading to a B.A. in administration and the new School of Public and Business Administration at the Regina campus of the University of Saskatchewan offers a four-year program leading to the degree of Bachelor of Administration. The University of Ottawa has recently established three programs in this field—a certificate, an honours degree, and an advanced certificate.

According to the Director of Carleton's School, practically all the part-time students and a considerable number of the full-time ones are already employed in the public service. Some undertake graduate training in public administration immediately after completing a general Arts degree or an honours degree, most frequently in political science, economics, sociology or psychology. The Executive Director of the Institute of Public Administration of Canada suggests, however, that it would perhaps be to the advantage of both employer and employee if the Bachelor's graduate were to work for a few years and then return to university for up-to-the-minute training in the broader aspects of public administration, methodology and technology, and management generally at the time when responsibilities falling upon the graduate make this training particularly useful.

Graduates who have continued their studies and received an additional degree in the sector embraced by public administration have a relatively wide choice of career opportunities, and working conditions usually compare favourably with those in private industry.

Two universities offer degree courses in secretarial science—Mount Allison University, which offers a four-year B.A. with secretarial certificate, and the University of Western Ontario, which gives both a three-year B.A. degree in secretarial science and

## **PUBLIC ADMINISTRATION**

## **SECRETARIAL SCIENCE**



a four-year honours degree in business administration and secretarial science. As well, Acadia University gives a combined four-year B.A. degree and a diploma in secretarial science.

Mount Allison University suggests that a degree course in secretarial science prepares an individual for secretarial work on the executive level in government, education, or industry, where a broad general education combined with a knowledge of the theory of business and skill in office and secretarial technique are required.

A number of other universities—including Mount St. Vincent University, Notre Dame University of Nelson, St. Dunstan's University, and St. Francis Xavier University—give a diploma in secretarial science.

The Head of the Department of Secretarial Science at the University of Western Ontario reports that most of the 1967 graduating class entered business, and that about 33 per cent of the class became teachers at the secondary school level.

## **SOCIAL WORK**

The unprecedented expansion of social services under both private and government auspices during the past two decades has created a severe shortage of professional social workers in Canada. According to the Canadian Association of Social Workers, the need for such persons is growing and will continue to increase in the foreseeable future.

The number of schools of social work awarding the M.S.W. degree has recently increased to ten, with the addition of Calgary's School of Social Welfare. These are located at the following institutions: Toronto, McGill, Montreal, Manitoba, Laval, British Columbia, Waterloo Lutheran, Calgary, and St. Patrick's College, Ottawa. The Maritime School of Social Work in Halifax is affiliated with several universities in that region. In addition, a number of universities offer courses in social welfare at the undergraduate level and Laurentian, Windsor, Memorial, and Sir George Williams offer a Bachelor's degree in this discipline. Other universities are considering the establishment of similar programs. Related diploma courses are being offered at some of the junior colleges, technological institutes, and colleges of applied arts and technology.

Opportunities for employment in the social work field are many and varied, and these will increase in number and in diversity as new services are developed by voluntary organizations and as government programs expand.

There are three major areas of specialization in social work — casework, which involves working with individuals and families; group work, which involves working with specific groups, and community organization, where work with the community as a whole is involved. The Director of the School of Social Welfare at St. Patrick's College reports that there are also generic programs that combine the casework and the group-work methods into one area.

Social workers are employed by government departments at all levels, but mainly in the fields of health, welfare, education, correction, administration, and research. Hundreds of independent voluntary organizations also employ social workers including such international bodies as the United Nations agencies and the YM and YWCA. A few social workers are engaged in private practice,

mostly on a part-time basis. Major fields of service include child and family welfare, family and marriage counselling, vocational rehabilitation, public assistance services, community development, medical and psychiatric social work, camping and other recreational programs, and institutional services for offenders, the handicapped, the very young, and the elderly.

The Canadian Association of Social Workers reports that with the expansion of schools of social work and of undergraduate programs and technical courses in the field, there is a growing demand for teachers of social work. The University of Toronto offers the Ph.D. degree in Social Work which is an increasingly important qualification for university teaching.

Salaries, working conditions, and opportunities for advancements for social workers have improved remarkably over the past few years.

Sociology is the social science which deals with people as members of groups or with the interaction of groups. Some areas of study within the discipline are social stratification, social and cultural change, political behaviour, work, religion, family and kinship, and criminology.

Historically, sociology is a fairly new discipline, but in the past hundred years, it has evolved from a grand, arm-chair theory approach to a rigorous, scientific study of human behaviour.

Typical of the changing approach to the study of society is the current emphasis on statistical manipulation of data. It is a rare graduate in sociology to-day who is not thoroughly familiar with demographic trends, census data, and statistical methods for handling them.

This year the 21 Canadian universities offering studies in sociology granted 219 Bachelors' degrees in that field. Next year this is expected to increase by 82 per cent to almost 400. The 18 schools offering graduate study in sociology this year granted 123 Master's degrees and six at the doctorate level.

The Sociology Department of Carleton University, in a pamphlet issued by the office of the Dean of Arts, says that graduates in sociology may find employment with international, national, provincial, or city governments, in industry, with social agencies, as educators, and as consultants.

Some of the areas in which sociologists work in government include manpower planning, personnel work, social welfare, urban planning, mass communications, criminology, penology, and research and statistics.

In industry, sociologists work in market research, sales and advertising, recruitment, training, statistics, and mass communications research.

With social welfare agencies, sociologists act as probation officers, social workers, and as researchers.

In education, sociologists teach at the high school level, act as guidance counsellors, and teach at post-secondary institutes of technology. University-level teaching and research increasingly requires the doctorate degree, although recognition is sometimes granted to persons of unusual competence without this qualification.

Sociologists also act as consultants in urban planning, survey research, and opinion polling.

## SOCIOLOGY

Salaries of graduates in sociology steadily improve as more recognition is granted to their discipline. In 1967, the new graduate without further qualification received about \$6,000 a year. This compares favourably with arts graduates in other disciplines.

## **THEATRE**

The demand for well-trained theatre people is growing, according to the Technical Director of Theatre at the University of Calgary. This increased demand is broadly based and includes the professional theatre as well as the university theatre and high school drama programs.

The person who wishes to train for the theatre has two routes from which to choose. The first is through the National Theatre School, which offers a three-year diploma course to high school graduates for training as actors, designers, directors, or technicians for the professional theatre. Graduates of the Theatre School are much in demand by theatres and television both in Canada and in the United States.

The second route lies through a good university drama department. The university graduate then has several options available, depending on his interests and talents. He can go to the National Theatre School for additional professional polish, to graduate school for a Master's degree in drama, or, for the person interested in educational theatre at the university level, on to an M.F.A. degree (currently only available in the United States) or an M.Phil. or Ph.D., possibly at the University of Toronto.

The number of universities offering degree programs in drama or theatre is increasing rapidly. At the present time, at least ten have Bachelor's programs—Alberta, British Columbia, Calgary, Dalhousie, Guelph, Moncton, Queen's, Saskatchewan, Victoria, and Sir George Williams. The University of British Columbia awards a Master's degree and Toronto the M.A., M. Phil, and Ph.D. degrees.

Universities have for some time taught the history of the theatre, usually in departments of English, but newer drama programs, while not aiming to produce professional actors as a rule, include some practical theatre training. Not many drama graduates actually become professional theatre people since most producers are more concerned with experience than with academic training.

The Acting Director of the Graduate Centre for the Study of the Drama at the University of Toronto points out that the graduate programs of that university are intended primarily for critics, historians, and teachers of dramatic literature. Most graduates at the Bachelor's and Master's level likely enter the teaching profession at the secondary school level. Graduates with higher degrees will probably obtain a university post, either in a department of drama or in a department where the particular dramatic literature in which they have concentrated is the prime concern.

## **THEOLOGY**

There are some 50 institutions in Canada today which offer theological training. About half of these are Roman Catholic; the rest are sponsored by various other denominations.

Candidates usually undergo a three or four-year program of study beyond the B.A. (sometimes B.Sc.) level. The Protestant churches require a three-year program, while the Roman





Catholic program is usually of four years' duration after the B.A. degree. Six or seven years of university-level study are thus required for one who wants to enter the ministry or priesthood.

The Master's and Doctor's degrees are of course available to anyone who qualifies, including the priest or minister. Courses and areas of specialization in theology vary according to denomination and special interests as they would in other disciplines. An individual who obtains a degree at the Master's or Doctor's level would probably be a member of the Ministry, but not in all cases. Teaching is open to the holder of a higher degree in a theological college or seminary, or perhaps as a part-time university professor in such fields as theology or philosophy.

There are other fields of work open to the minister, priest, or lay theological graduate. Such fields would include social services and counselling, with a view to which the universities provide courses in sociology, theoretical and practical psychology, philosophy, ethics, modern trends in theology, and the biblical basis of Christian life and practice. The wide range of activities of ordained members is well illustrated by the work of the Oblate Fathers. The Oblates are in charge of over 200 Canadian parishes, teach in a number of high schools and, until a few years ago, directed the University of Ottawa. Oblates preach parish missions, are chaplains in the armed services, and serve in prisons and hospitals. Also, they direct a considerable number of residential schools and are engaged in special Indian welfare work.

The Dean of Theology at Bishop's University reports that for the past few years there has been a scarcity of men offering themselves for the ordained Ministry, and this seems to be on a world-wide scale and not peculiar to any branch of the Church. Accordingly there are ample opportunities, and a wide variety of service, open to candidates for the Christian Ministry. The Associate Secretary of the Board of Colleges and Schools of the United Church states that although the number of people studying for the Ministry has declined steadily since 1958, the number volunteering for special duties in the mission fields in Canada and beyond is holding up well. The secretary also stated that the shortage of ordained personnel was being felt by all the major Christian denominations.

The Principal of the McMaster Divinity College is also of the opinion that most of the Christian churches of Canada are experiencing a shortage of ministers and priests.

Beginning salaries vary greatly among the denominations and usually include housing, telephone, utilities, medical and pension benefits, and sometimes an automobile. Some members of the Ministry do not work for a real income; rather, their basic needs are supplied to them along with a very minimal salary for incidentals.

McGill University reports that in one of the largest Protestant denominations, the minimum starting salary, including a free house, car, and other allowances, compares favourably with the other professions, approximately \$600 monthly.

## URBAN STUDIES AND REGIONAL PLANNING

The Town Planning Institute of Canada reports a very serious shortage of qualified urban and regional planners in both governmental and private practitioners' offices. There is an increasing demand for planners to undertake such work as the preparation

of master plans, redevelopment schemes, and regional planning projects.

The existing planning schools are located in six universities: Montreal, McGill, Toronto, Manitoba, British Columbia, and Waterloo. With the exception of Waterloo, these schools take only graduate students who may be from a wide variety of disciplines including the social sciences, the humanities, engineering, architecture, and law. The programs lead to Master's degrees and diplomas and vary in length between one and two academic years. The Master's degree is the typical professional qualification, but it is likely that Ph.D. programs will be available in some universities in the near future.

Fellowships are available from the Central Mortgage and Housing Corporation for candidates wishing to study planning at the graduate level. In 1967, the value was \$3,000 plus a \$1,000 dependent supplement.

Many new developments are taking place in this field in a number of Canadian universities. The University of Waterloo has established a Planning and Resources Institute to co-ordinate interdisciplinary research in urban and regional planning, geography, and in socio-economic and resource development.

McMaster University has established a Research Unit for Urban Studies which offers graduate courses in urban planning, land use, and transportation systems considered against the background of the social, political, economic, and aesthetic factors affecting urban development.

The University of Guelph has recently opened a Centre for Resources Development which will co-ordinate research and graduate studies on the various aspects of conservation policy and practice and natural resources planning and development.

The Head of the Department of City Planning at the University of Manitoba points out that research opportunities are now being made available at some of the planning schools for students in the graduate program and after graduation. Manitoba is presently establishing a research unit to investigate the phenomena of human settlements and urbanization. This unit, being interdisciplinary in nature, will require staff from many levels and from various backgrounds, including graduate students in planning.

Planning offers a very wide variety of opportunities to young people. The range extends from research work, perhaps in economics or sociology, to executive work as director of a planning authority. A young planner may find himself doing a survey of part of a town, examining the economic future of towns in a region, preparing an urban renewal project, or trying to solve the problems of a metropolitan downtown area.

The major opportunity for employment is with governmental agencies, primarily at the municipal level. However, there are an increasing number of positions open with private firms. These may include consulting services or specific planning activity for that firm. In the future, major corporations may employ planners to create entirely new cities in present wilderness areas, a trend which is now developing in the United States.

Starting salaries are very good and opportunities for advancement are related to professional development and demonstrated skill.

In addition to offering the M.A. degree in regional planning, the



University of Waterloo now offers an honours B.A. in urban and regional planning, developed in response to a rapidly growing demand for planners in Canada. The University suggests that graduates of this program will be particularly well prepared for graduate work in some specialized area of planning. In 1966, over 30 students were enrolled in the first year of the honours B.A. program and Waterloo reports that the demand was so great that agencies tried to hire them before they completed their four-year program.

## VETERINARY MEDICINE



The Dean of the Ontario Veterinary College suggests that several factors are contributing to a growing interest in veterinary medicine as a career. Secondary school students considering a career are concerned about the availability of university training in general, regardless of their special interests. As well, there has been increasing evidence of the importance placed on science as a career and as a part of the entire socio-economic environment. Finally, there is a growing awareness of the unique training given to veterinarians equipping them for a variety of careers. The basic undergraduate course provides the training for various kinds of veterinary practice, as well as the basis for advanced education in anatomy, medical chemistry, bacteriology, physiology, virology, pathology, and preventive medicine. Increasingly, veterinarians are sought by government, industry, and universities. Their special training gives them entry to all research involving animals.

In Canada, there are three schools of veterinary medicine: the Ontario Veterinary College, Guelph; l'Ecole de Médecine vétérinaire, St. Hyacinthe; and the new Western College of Veterinary Medicine at the University of Saskatchewan, which admitted its first students in 1965.

It is expected that within the next few years, the Saskatchewan college will increase the number of its students to 60 in each year. The Dean of the College reports a total of 34 first-year students enrolled in 1966. The Ontario Veterinary College anticipates that its yearly quota of 80 will increase to 100. The Quebec school graduates about 30 to 35 veterinarians each year.

The course format at the Ontario and Saskatchewan colleges is similar, a two-year pre-veterinary course followed by a four-year professional program. At the Quebec school, the four-year professional program is preceded by a one-year pre-veterinary course that must be taken by students other than those holding a B.A. degree or its equivalent.

Veterinarians are placing increasing emphasis on graduate study as they plan careers in research, teaching, and industry. Forty-five graduate students were enrolled at the Ontario Veterinary College for the 1966-67 season, and there is a strong possibility that the forecast of 75 for 1970 may be reached before that time. Smaller numbers are enrolled in graduate studies at the other two veterinary colleges.

L'École de Médecine vétérinaire at St. Hyacinthe reports that those with graduate degrees are often hired by universities either as professors or as members of other research teams. Others prefer work in the fields of biology, immunology, experimental surgery, or in large industrial or pharmaceutical laboratories.

The Canadian Veterinary Medical Association reports that,

while over one-third of veterinarians are in general practice, the federal government is the largest single employer of veterinarians in Canada (about 25 per cent), and expects that it will continue to require veterinarians as the livestock industry expands. Provincial and municipal governments employ a small number of graduate veterinarians as well.





The following tables deal with starting salaries offered to 1967 graduates, and with the estimated number of graduates by disciplines, of Canadian universities at both the undergraduate and graduate levels.

The starting salaries reported here for 1967 graduates are based on surveys of 300 national employers conducted during 1966 and 1967 by the Pay Research Bureau in co-operation with the Professional and Technical Occupations Section. These results were supplemented by information provided in 1967 by university placement and career planning personnel. No figures are given where there was insufficient information obtained to provide a valid estimate of starting salaries.

The figures reported are, of course, averages, covering all types of employment for graduates of many institutions in a particular discipline. Rates for special fields of employment, or for students with special qualifications, would naturally vary from those in the table.

In general, the pattern of starting salaries for 1967 graduates has increased considerably from that for 1966 graduates. Salary rates for 1967 Bachelor's graduates in honours arts courses, for example, have generally risen by at least 10 per cent over 1966 rates to slightly over \$500, while those for Master's graduates in most arts subjects are nearing the \$600 level, and for doctorate graduates, nearly \$800. Rates at all three levels in science disciplines are slightly higher than those for arts, although, except at the Master's level, large percentage increases over 1966 rates have been less consistent.

Bachelor's rates for engineers have risen over those of the previous year by an almost uniform rate of slightly over 10 per cent to the \$580-595 range. Master's and Doctor's rates have increased by an even greater percentage to the \$670-700 and \$875-925 levels respectively.

Rates in other disciplines at the Bachelor's level have risen in almost all cases by at least 10 per cent over 1966 with particularly large increases reported in journalism, law articles, speech therapy, and physiotherapy. Salaries for Masters of Social Work and Masters of Business Administration have each risen by about 20 per cent.

Table Two estimates the number of students expected to graduate by discipline from each of the larger universities and colleges in Canada at the undergraduate level in 1967 and 1968. These figures are based primarily on a survey undertaken by the Education Division of the Dominion Bureau of Statistics, with those on engineering supplied by the Engineering Institute of Canada. They are edited for inclusion here, and the estimated total for each discipline is not always the actual sum of the figures for the institutions in the column. Allowances have sometimes been made in the totals for those universities listed for which information relating to graduations was not available. Only those students studying at the main centre of a university are included in the estimates for that institution; those at affiliated institutions located elsewhere are not included.

There is virtually no pattern among different disciplines in the change in the expected number of graduates in 1968 over 1967.

## APPENDIX

### Starting Salaries

### Estimated Graduations

Only about ten of the disciplines listed show no increase (some of which reveal small decreases), and the increases shown in the other 50 disciplines vary widely. Some of the most dramatic ones are in sociology, economics, zoology, mathematics, and survey engineering. Geology and geological engineering and physiotherapy expect to have increases in the area of 100 per cent.

Table Three estimates the number of students expected to graduate with Master's and Doctor's degrees, by discipline, in 1967 and 1968. These figures are of necessity less reliable than those for undergraduate degrees because the length of a graduate degree program is not so precise, and because the exact time that a thesis will be completed is difficult to predict. Nevertheless, by using past patterns of graduations at each university and current or projected enrolments, estimations have been attempted.

**TABLE ONE**  
**1967 University Graduates — Estimated Monthly Starting Salaries**

These estimates of the monthly starting salaries for those who graduated in 1967 are based on information obtained directly from the largest national employers and from placement and career planning offices. These estimates were obtained before graduation and the commencement of employment.

DISCIPLINE	BACHELORS \$ per month	MASTERS \$ per month	DOCTORS \$ per month
Arts, General, and Pass Courses.....	470	—	—
Honours:			
Economics.....	520	610	800
English Language & Literature.....	540	600	770
French Language & Literature.....	545	600	775
History.....	525	580	800
Modern Languages & Literature.....	530	590	775
Philosophy.....	525	575	800
Political Science.....	520	570	770
Psychology.....	505	570	780
Sociology.....	500	545	785
Science, General, and Pass Courses.....	480	—	—
Honours:			
Bacteriology.....	550	625	800
Biochemistry.....	520	615	800
Biology.....	525	615	800
Chemistry.....	555	650	825
Chemistry and Physics.....	550	650	835
Computer Science.....	550	655	—
Geography.....	525	605	800
Geology.....	575	650	810
Geophysics.....	530	625	—
Mathematics.....	550	630	810
Mathematics and Physics.....	560	665	790
Metallurgy.....	570	630	810
Microbiology.....	565	650	—
Physics.....	555	640	810
Engineering:			
Chemical.....	595	680	900
Civil.....	590	680	875
Electrical.....	585	680	900
Physics.....	590	670	875
Forestry.....	575	—	—
Geological.....	600	720	935
Industrial.....	585	700	915
Mechanical.....	590	675	950
Metallurgical.....	585	685	900
Mining.....	600	700	—
Survey.....	585	—	—
Agriculture.....	540	630	840
Architecture.....	600	—	—
Commerce and Business Administration.....	525	675	900
Commerce for C.A. Articles only.....	460	—	—
Forestry.....	550	650	850
Home Economics.....	480	—	—
Journalism.....	465	590	—
Law.....	550	610	—
Law, for Law Articles only.....	300	—	—
Library Science.....	520	580	—
Secretarial Science.....	470	—	—
Social Work.....	500	575	—
Education.....	500	585	890
Physical Education.....	505	—	—
Dentistry (D.D.S.).....	760	—	—
Nursing, degree plus R.N.....	435	—	—
Pharmacy.....	610	—	—
Physiotherapy.....	460	—	—
Speech Therapy.....	500	—	—



**TABLE TWO**  
**Universities — Estimated Graduations by Disciplines (1967-68)**

University or College	PASS AND GENERAL								HONOURS ARTS AND SCIENCE							
	Arts		Science		Fine Arts and Theatre		Music		English and English Lit.		French and French Lit.		Modern Language and Lit.			
	67	68	67	68	67	68	67	68	67	68	67	68	67	68	67	68
Memorial University.....(1)	129	50	131	71	—	—	—	—	—	3	3	2	—	1		
Prince of Wales College.....(2)	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
St. Dunstan's University.....(3)	77	75	23	30	—	—	—	—	—	—	—	—	—	—		
Acadia University.....(4)	123	153	47	93	—	—	—	—	2	—	1	—	—	—		
Dalhousie University.....(5)	178	233	101	157	—	—	—	—	2	4	—	7	2	3		
Mount St. Vincent University.....(6)	71	109	4	16	—	—	—	—	—	—	—	—	—	—		
Nova Scotia Technical College.....(7)	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
St. Francis Xavier University.....(8)	166	215	48	73	—	—	—	—	3	7	—	—	—	—		
St. Mary's University.....(9)	59	112	18	24	—	—	—	—	1	—	—	—	—	—		
Mount Allison University.....(10)	91	116	44	35	7	7	7	7	4	7	1	1	—	—		
Université de Moncton.....(11)	203	225	—	3	—	—	—	—	—	—	—	—	—	—		
University of New Brunswick.....(12)	143	173	27	68	—	—	—	—	19	12	2	1	1	2		
Bishop's University.....(13)	84	87	28	23	—	—	—	—	6	8	1	1	—	—		
Collège Jean-de-Brébeuf.....(14)	110	140	—	—	—	—	—	—	—	—	—	—	—	—		
Collège Sainte-Marie.....(15)	300	350	—	—	—	—	—	—	—	—	—	—	—	—		
Loyola College.....(16)	161	260	46	106	—	—	—	—	9	8	1	6	—	—		
Marianopolis College.....(17)	78	69	16	17	—	—	—	—	—	—	—	—	—	—		
McGill University.....(18)	405	460	451	500	3	3	28	35	20	22	7	8	—	—		
Sir George Williams University.....(19)	629	606	137	167	3	7	—	—	11	9	1	2	—	—		
Université Laval.....(20)	400	480	—	—	—	—	28	18	—	—	—	—	—	—		
Université de Montréal.....(21)	2463	2721	157	234	—	—	2	7	12	—	7	8	2	3		
Université de Sherbrooke.....(22)	282	325	—	—	—	—	—	—	4	8	7	12	—	—		
Brock University.....(23)	38	126	7	20	—	—	2	—	—	3	—	2	—	—		
Carleton University.....(24)	352	472	60	137	—	—	—	—	14	15	3	2	4	3		
Lakehead University.....(25)	91	137	25	38	—	—	—	—	7	—	1	—	—	—		
Laurentian University.....(26)	170	280	40	50	—	—	—	—	—	1	—	6	—	—		
McMaster University.....(27)	670	605	96	157	3	2	—	—	14	22	12	24	2	14		
Queen's University.....(28)	456	464	—	—	—	—	—	—	30	36	8	9	5	2		
Royal Military College.....(29)	63	65	30	43	—	—	—	—	—	—	—	—	—	—		
St. Patrick's College.....(30)	156	197	—	—	—	—	—	—	3	—	2	—	—	—		
Trent University.....(31)	38	73	2	15	—	—	—	—	—	—	—	—	—	—		
Université d'Ottawa.....(32)	275	291	37	60	—	—	—	—	—	—	3	6	—	—		
University of Guelph.....(33)	—	135	—	30	—	—	—	—	—	—	—	—	—	—		
University of Toronto.....(34)	1114	1194	228	342	22	27	5	5	92	87	13	10	94	86		
University of Waterloo.....(35)	192	281	96	110	—	—	—	—	3	7	3	4	1	3		
University of Western Ontario.....(36)	581	521	157	179	—	—	20	27	13	28	2	10	13	18		
University of Windsor.....(37)	278	320	64	61	—	—	—	—	6	8	13	11	—	—		
Waterloo Lutheran University.....(38)	426	500	35	60	—	—	—	—	13	22	18	10	—	—		
York University (and Osgoode).....(39)	181	444	8	25	—	—	—	—	10	27	7	8	—	—		
Brandon University.....(40)	91	106	51	41	—	—	2	6	—	—	—	—	—	—		
University of Winnipeg.....(41)	303	387	77	77	—	—	—	—	10	10	—	—	—	—		
University of Manitoba.....(42)	893	1088	354	362	20	19	8	15	25	32	7	9	—	—		
University of Sask. (Regina).....(43)	147	225	74	103	—	—	—	10	5	—	—	—	—	—		
University of Sask. (Saskatoon).....(44)	470	668	201	290	6	4	—	—	14	18	4	4	2	1		
University of Alberta.....(45)	447	547	314	324	11	17	8	13	14	9	—	—	11	12		
University of Calgary.....(46)	223	316	146	158	—	—	—	—	2	6	—	—	6	2		
Notre Dame University.....(47)	27	26	2	6	—	—	—	—	4	7	1	1	—	—		
Simon Fraser University.....(48)	31	257	5	86	—	—	—	—	—	—	—	—	—	—		
University of British Columbia.....(49)	748	850	385	511	4	6	40	40	34	67	8	20	5	3		
University of Victoria.....(50)	148	151	82	113	—	—	—	—	4	11	2	6	—	—		
Estimated Total.....	14770	17690	3860	5015	85	95	140	185	410	510	140	195	150	155		

**TABLE TWO — (Cont.)**  
**Universities — Estimated Graduations by Disciplines (1967-68)**

HONOURS ARTS AND SCIENCE																				University
History		Anthrop. and Sociology		Classics		Economics		Philosophy		Political Science		Psychology		Bio-chemistry		Biological Sciences		Micro-biology		
67	68	67	68	67	68	67	68	67	68	67	68	67	68	67	68	67	68	67	68	
1	2	1	2	1	1	2	1	—	—	—	—	1	1	—	—	2	—	—	—	(1)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(2)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(3)
7	1	—	—	—	—	—	—	—	—	—	—	—	—	2	—	8	3	—	—	(4)
4	7	1	1	—	1	3	2	2	—	3	—	5	4	4	—	3	5	—	—	(5)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(6)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(7)
1	8	—	3	—	—	2	1	—	—	—	—	—	—	—	—	—	1	—	—	(8)
3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(9)
2	1	—	—	1	—	—	1	1	1	—	—	1	1	—	—	1	6	—	—	(10)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(11)
8	8	2	3	—	1	4	—	—	—	4	—	4	3	—	—	4	—	—	—	(12)
5	13	—	—	—	—	1	1	1	1	—	—	5	6	—	—	2	4	—	—	(13)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(14)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(15)
8	13	—	—	—	—	5	10	—	—	1	—	—	—	—	—	—	—	—	—	(16)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(17)
12	14	11	14	3	4	18	20	3	3	—	—	36	40	13	15	6	8	1	1	(18)
3	9	—	7	—	—	6	9	—	—	2	—	1	5	—	—	—	—	—	—	(19)
—	—	18	34	—	—	20	28	—	—	12	30	8	13	8	9	48	11	—	—	(20)
—	—	140	299	6	7	40	103	56	71	40	83	56	81	8	3	13	22	—	—	(21)
4	10	—	—	—	1	17	23	—	4	—	—	1	10	—	—	14	23	—	—	(22)
—	5	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	(23)
13	13	2	2	—	4	2	5	1	1	5	7	7	10	—	—	6	8	—	—	(24)
4	—	—	—	—	—	1	—	—	—	—	—	2	—	—	—	1	—	—	—	(25)
—	7	—	—	—	—	2	—	—	—	—	—	—	1	—	—	—	—	—	—	(26)
23	27	2	6	1	1	4	6	6	3	2	7	6	17	6	5	10	8	—	—	(27)
24	11	—	—	3	1	15	17	6	4	13	15	14	12	3	2	18	10	—	—	(28)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(29)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(30)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(31)
2	10	2	9	—	—	5	11	—	—	9	12	—	—	1	1	6	9	—	—	(32)
—	—	—	—	—	—	29	23	—	—	—	—	—	—	—	—	—	—	25	25	(33)
103	98	20	21	12	16	—	—	27	24	59	72	29	33	—	—	53	50	—	—	(34)
9	8	2	—	1	3	1	4	1	3	6	5	1	9	—	—	2	—	—	—	(35)
22	18	—	—	1	2	9	10	4	2	5	11	13	11	—	3	14	19	—	—	(36)
3	1	1	1	—	—	1	5	—	—	1	6	14	—	1	1	—	1	—	—	(37)
22	15	—	—	—	—	4	7	4	4	2	2	8	8	—	—	—	—	—	—	(38)
18	34	5	18	—	—	6	6	3	5	6	12	13	24	—	—	4	7	—	—	(39)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(40)
6	8	4	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	(41)
11	14	—	2	1	2	7	16	—	4	—	6	2	10	—	—	3	16	2	14	(42)
7	—	—	—	—	—	2	—	—	—	—	—	5	—	1	—	1	—	—	—	(43)
14	18	4	8	2	2	4	8	8	9	5	7	7	10	3	3	17	20	—	—	(44)
4	5	—	2	2	1	1	1	—	3	4	3	7	4	2	5	7	7	3	—	(45)
3	4	3	1	—	1	2	3	1	1	3	2	—	2	—	1	—	1	—	—	(46)
3	12	2	3	—	—	—	—	2	2	—	—	1	2	—	—	1	—	—	—	(47)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(48)
10	14	5	7	3	5	11	11	6	5	8	19	6	10	2	3	3	9	5	7	(49)
3	2	1	2	1	—	3	4	2	—	3	5	2	6	—	1	3	—	—	—	(50)
365	415	225	445	40	55	230	345	140	155	190	305	255	350	60	55	250	250	35	50	

TABLE TWO — (Cont.)

## Universities — Estimated Graduations by Disciplines (1967-68)

University or College	HONOURS ARTS AND SCIENCE													
	Zoology		Chemistry		Geography		Geology and Geophysics		Mathematics		Mathematics and Physics		Physics	
	67	68	67	68	67	68	67	68	67	68	67	68	67	68
Memorial University.....(1)	—	—	2	1	—	1	1	1	2	3	—	—	1	4
Prince of Wales College.....(2)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
St. Dunstan's University.....(3)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Acadia University.....(4)	—	—	6	—	—	—	—	—	—	—	—	—	3	—
Dalhousie University.....(5)	—	—	6	12	—	—	—	—	2	4	—	—	8	9
Mount St. Vincent University.....(6)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Nova Scotia Technical College.....(7)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
St. Francis Xavier University.....(8)	—	—	4	2	—	—	—	—	—	3	—	—	5	3
St. Mary's University.....(9)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mount Allison University.....(10)	—	—	5	6	—	—	—	—	5	6	—	—	2	—
Université de Moncton.....(11)	—	—	—	4	—	—	—	—	—	—	—	—	—	4
University of New Brunswick.....(12)	—	—	7	—	—	—	1	—	—	1	3	—	2	—
Bishop's University.....(13)	—	—	5	7	—	1	—	—	2	7	1	—	3	3
Collège Jean-de-Brébeuf.....(14)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Collège Sainte-Marie.....(15)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Loyola College.....(16)	—	—	5	10	—	—	—	—	4	2	—	—	5	3
Marianopolis College.....(17)	—	—	5	6	—	—	—	—	—	—	—	—	—	—
McGill University.....(18)	8	10	10	12	6	8	10	12	—	—	1	2	12	14
Sir George Williams University.....(19)	2	—	1	5	1	1	—	—	6	7	4	3	—	—
Université Laval.....(20)	—	—	12	18	—	—	—	—	31	35	—	—	24	26
Université de Montréal.....(21)	—	—	5	15	17	20	2	6	16	34	—	—	16	18
Université de Sherbrooke.....(22)	—	—	5	17	—	6	—	—	1	8	—	—	4	8
Brock University.....(23)	—	—	—	—	—	5	—	—	—	2	—	—	—	—
Carleton University.....(24)	—	—	3	3	4	3	4	2	6	12	—	6	2	3
Lakehead University.....(25)	—	—	—	—	—	—	—	—	3	—	—	—	—	—
Laurentian University.....(26)	—	—	—	3	—	—	—	—	—	8	—	—	—	1
McMaster University.....(27)	—	—	9	10	9	22	—	1	7	23	1	5	5	17
Queen's University.....(28)	—	—	22	19	9	4	6	10	11	6	11	15	4	13
Royal Military College.....(29)	—	—	—	—	—	—	—	—	—	—	5	6	—	—
St. Patrick's College.....(30)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Trent University.....(31)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Université d'Ottawa.....(32)	—	—	3	10	2	3	—	2	3	9	—	—	10	6
University of Guelph.....(33)	12	15	16	8	—	—	—	—	—	—	—	—	—	—
University of Toronto.....(34)	—	—	12	26	17	19	8	4	6	3	50	53	5	2
University of Waterloo.....(35)	—	—	16	22	9	8	—	—	6	57	18	—	9	22
University of Western Ontario.....(36)	—	—	15	16	12	12	6	11	11	10	—	—	12	11
University of Windsor.....(37)	—	—	2	4	1	2	—	—	4	7	—	1	1	3
Waterloo Lutheran University.....(38)	—	—	—	—	20	17	—	—	—	—	—	—	—	—
York University (and Osgoode).....(39)	—	—	—	—	8	19	—	—	3	5	—	—	—	—
Brandon University.....(40)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University of Winnipeg.....(41)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University of Manitoba.....(42)	4	15	14	20	1	9	5	6	13	9	—	—	14	17
University of Sask. (Regina).....(43)	—	—	1	—	—	—	—	—	4	—	—	—	6	—
University of Sask. (Saskatoon).....(44)	—	—	9	12	4	5	6	6	14	16	—	—	4	10
University of Alberta.....(45)	8	16	7	14	—	1	1	2	3	11	—	—	10	7
University of Calgary.....(46)	2	1	2	3	—	1	1	1	2	4	—	—	1	6
Notre Dame University.....(47)	3	3	1	4	—	—	—	—	2	3	—	—	—	—
Simon Fraser University.....(48)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University of British Columbia.....(49)	9	15	32	30	5	2	16	12	26	38	—	—	19	27
University of Victoria.....(50)	—	—	10	3	1	1	—	—	6	12	—	—	4	7
Estimated Total.....	50	75	255	325	130	175	60	65	210	365	95	90	195	245



**TABLE TWO — (Cont.)**  
**Universities — Estimated Graduations by Disciplines (1967-68)**

APPLIED SCIENCE AND ENGINEERING																				University
Aero-nautical		Agri-cultural		Chemical		Civil		Electrical		Geology and Mineralogy		Industrial		Mechanical		Metal-lurgical		Mining		
67	68	67	68	67	68	67	68	67	68	67	68	67	68	67	68	67	68	67	68	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(1)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(2)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(3)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(4)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(5)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(6)
—	—	—	—	10	15	28	26	26	28	3	—	20	19	32	23	7	2	4	7	(7)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(8)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(9)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(10)
—	—	—	—	4	8	26	33	25	25	—	—	—	—	16	18	—	—	—	—	(11)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(12)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(13)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(14)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(15)
—	—	—	—	—	7	5	2	—	8	—	—	—	—	—	5	—	—	—	—	(16)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(17)
—	—	—	—	22	25	17	20	75	80	—	2	—	—	33	38	—	2	—	1	(18)
—	—	—	—	—	—	12	17	15	20	—	—	—	—	23	29	—	—	—	—	(19)
—	—	—	—	26	31	54	47	30	35	6	12	—	—	30	36	13	14	6	3	(20)
—	—	—	—	26	30	58	62	44	59	2	10	—	—	63	46	8	10	6	12	(21)
—	—	—	—	—	—	8	16	12	23	—	—	—	—	9	11	—	—	—	—	(22)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(23)
—	—	—	—	—	—	9	—	25	—	—	—	—	—	13	—	—	—	—	—	(24)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(25)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(26)
—	—	—	—	9	10	13	10	5	21	—	—	—	—	9	8	7	4	—	—	(27)
—	—	—	—	27	37	37	33	45	34	1	6	—	—	35	31	16	9	5	6	(28)
—	—	—	—	17	24	14	18	19	21	—	—	—	14	19	23	—	—	—	—	(29)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(30)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(31)
—	—	—	—	4	6	7	8	14	18	—	2	—	—	—	—	—	—	—	—	(32)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(33)
42 <sup>(1)</sup>	44 <sup>(1)</sup>	23	32	73	82	42	57	77	84	9	4	43	46	64	60	7	8	2	—	(34)
—	—	—	—	24	75	30	73	41	116	—	—	—	—	44	113	—	—	—	—	(35)
—	—	—	—	13	18	14	8	14	13	—	—	—	—	7	13	—	2	—	—	(36)
—	—	—	—	6	9	12	12	6	15	—	—	—	—	16	16	1	3	—	—	(37)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(38)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(39)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(40)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(41)
—	—	—	—	—	—	41	54	38	53	1	5	—	—	43	61	—	—	—	—	(42)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(43)
9	5	12	13	11	14	39	38	49	39	5	12	—	—	49	64	—	—	—	—	(44)
—	—	—	—	38	46	49	44	40	71	—	—	—	—	44	70	7	4	5	3	(45)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(46)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(47)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(48)
—	—	3	4	32	31	31	37	52	54	1	7	—	—	47	45	28	20	7	8	(49)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(50)
55	50	40	50	340	470	550	615	655	820	30	60	65	80	600	710	100	85	35	40	

<sup>(1)</sup> Engineering Science

**TABLE TWO — (Cont.)**  
**Universities — Estimated Graduations by Disciplines (1967-68)**

University or College	APPLIED SCIENCE AND ENGINEERING						MISCELLANEOUS COURSES							
	Physics		Survey		Forestry and Forestry and Eng.		Agriculture		Architecture		Commerce and Bus. Admin.		Dental Hygiene	
	67	68	67	68	67	68	67	68	67	68	67	68	67	68
Memorial University.....(1)	—	—	—	—	—	—	—	—	—	—	44	54	—	—
Prince of Wales College.....(2)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
St. Dunstan's University.....(3)	—	—	—	—	—	—	—	—	—	—	4	13	—	—
Acadia University.....(4)	—	—	—	—	—	—	—	—	—	—	23	38	—	—
Dalhousie University.....(5)	2	—	—	—	—	—	—	—	—	—	52	42	7	13
Mount St. Vincent University.....(6)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Nova Scotia Technical College.....(7)	—	—	—	—	—	—	—	—	11	18	—	—	—	—
St. Francis Xavier University.....(8)	—	—	—	—	—	—	—	—	—	—	31	41	—	—
St. Mary's University.....(9)	—	—	—	—	—	—	—	—	—	—	31	64	—	—
Mount Allison University.....(10)	—	—	—	—	—	—	—	—	—	—	20	22	—	—
Université de Moncton.....(11)	—	—	—	—	—	—	—	—	—	—	42	65	—	—
University of New Brunswick.....(12)	—	—	5	5	33	37	—	—	—	—	27	60	—	—
Bishop's University.....(13)	—	—	—	—	—	—	—	—	—	—	13	12	—	—
Collège Jean-de-Brébeuf.....(14)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Collège Sainte-Marie.....(15)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Loyola College.....(16)	—	—	—	—	—	—	—	—	—	—	53	90	—	—
Marianopolis College.....(17)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
McGill University.....(18)	—	—	—	—	—	—	78	83	26	28	78	100	—	—
Sir George Williams University.....(19)	—	—	—	—	—	—	—	—	—	—	165	188	—	—
Université Laval.....(20)	7	13	17	33	28	29	86	75	11	17	171	151	—	—
Université de Montréal.....(21)	20	8	—	—	—	—	—	—	17	22	166	243	—	—
Université de Sherbrooke.....(22)	—	—	—	—	—	—	—	—	—	—	123	125	—	—
Brock University.....(23)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Carleton University.....(24)	—	—	—	—	—	—	—	—	—	—	40	62	—	—
Lakehead University.....(25)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Laurentian University.....(26)	—	—	—	—	—	—	—	—	—	—	5	8	—	—
McMaster University.....(27)	4	3	—	—	—	—	—	—	—	—	20	22	—	—
Queen's University.....(28)	7	10	—	—	—	—	—	—	—	—	17	30	—	—
Royal Military College.....(29)	7	7	—	—	—	—	—	—	—	—	—	—	—	—
St. Patrick's College.....(30)	—	—	—	—	—	—	—	—	—	—	11	28	—	—
Trent University.....(31)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Université d'Ottawa.....(32)	—	—	—	—	—	—	—	—	—	—	66	67	—	—
University of Guelph.....(33)	—	—	—	—	—	—	154	173	—	—	—	—	—	—
University of Toronto.....(34)	—	—	—	—	23	13	—	—	44	35	88	69	46	47
University of Waterloo.....(35)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University of Western Ontario.....(36)	—	—	—	—	—	—	—	—	—	—	72	81	—	—
University of Windsor.....(37)	—	—	—	—	—	—	—	—	—	—	44	39	—	—
Waterloo Lutheran University.....(38)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
York University (and Osgoode).....(39)	—	—	—	—	—	—	—	—	—	—	20	24	—	—
Brandon University.....(40)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University of Winnipeg.....(41)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University of Manitoba.....(42)	7	—	—	—	—	—	53	52	30	36	77	118	14	16
University of Sask. (Regina).....(43)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University of Sask. (Saskatoon).....(44)	6	1	—	—	—	—	44	55	—	—	109	113	—	—
University of Alberta.....(45)	—	—	—	—	—	—	55	69	—	—	136	147	19	22
University of Calgary.....(46)	—	—	—	—	—	—	—	—	—	—	34	32	—	—
Notre Dame University.....(47)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Simon Fraser University.....(48)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University of British Columbia.....(49)	10	9	—	—	39	40	45	45	17	27	203	223	—	—
University of Victoria.....(50)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Estimated Totals.....	70	55	25	40	125	120	520	555	200	240	1950	2320	90	100

**TABLE TWO — (Cont.)**  
**Universities-Estimated Graduations by Disciplines (1967-68)**

MISCELLANEOUS COURSES																					
Dentistry		Education diploma		degree		Home Economics		Law		Library Bachelor		Science Master		Medicine (M.D.)		Nursing College Diplomas		Bachelor Degrees		University	
67	68	67	68	67	68	67	68	67	68	67	68	67	68	67	68	67	68	67	68		
—	—	—	—	298	243	—	—	—	—	—	—	—	—	—	—	—	—	5	5	(1)	
—	—	53	29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(2)	
—	—	—	—	6	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(3)	
—	—	8	6	65	—	16	22	—	—	—	—	—	—	—	—	—	—	—	—	(4)	
26	21	14	—	137	—	—	—	51	63	—	—	—	—	62	61	129	—	11	17	(5)	
—	—	8	—	24	—	9	16	—	—	—	—	—	—	—	—	—	—	3	5	(6)	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(7)	
—	—	—	17	44	—	17	21	—	—	—	—	—	—	—	—	—	—	10	7	(8)	
—	—	—	—	18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(9)	
—	—	4	—	26	—	14	24	—	—	—	—	—	—	—	—	—	—	—	—	(10)	
—	—	—	—	38	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(11)	
—	—	—	—	37	22	—	—	21	35	—	—	—	—	—	—	—	—	21	20	(12)	
—	—	—	—	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(13)	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(14)	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(15)	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(16)	
—	—	—	—	—	—	3	8	—	—	—	—	—	—	—	—	—	—	—	—	(17)	
32	36	700	750	180	190	25	47	56	57	—	—	40	45	98	110	—	—	104	175	(18)	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(19)	
—	—	—	—	—	—	—	—	60	64	—	—	—	—	134	115	—	—	—	—	(20)	
45	60	—	—	300	350	—	—	108	143	—	—	—	—	106	112	59	—	85	95	(21)	
—	—	—	—	410	423	—	—	36	40	—	—	—	—	—	—	—	—	—	—	(22)	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(23)	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(24)	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	5	(25)	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(26)	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	15	19	(27)	
—	—	—	—	—	—	—	—	59	70	—	—	—	—	47	60	6	—	34	25	(28)	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(29)	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(30)	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(31)	
—	—	—	—	—	—	11	5	30	89	55	—	1	1	79	88	81	49	15	—	(32)	
—	—	—	—	—	—	68	78	—	—	—	—	—	—	—	—	—	—	—	—	(33)	
124	129	507	—	2	—	24	15	115	144	177	—	5	—	133	181	69	—	78	66	(34)	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(35)	
—	—	43	—	225	—	3	24	47	73	—	—	1	—	59	56	134	—	84	1	(36)	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	98	—	27	40	(37)	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	65	70	—	—	(38)	
—	—	—	—	—	—	—	—	167	173	—	—	—	—	—	—	—	—	—	—	(39)	
—	—	164	—	16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(40)	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(41)	
26	28	712	239	—	—	93	130	93	30	—	—	—	—	62	70	24	—	34	27	(42)	
—	—	—	—	59	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(43)	
—	—	—	—	277	464	44	34	45	43	—	—	—	—	45	47	37	38	135	45	(44)	
52	36	72	—	423	802	44	87	52	64	—	—	—	—	74	79	185	120	36	41	(45)	
—	—	172	328	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(46)	
—	—	1	—	7	15	—	—	—	—	4	1	—	—	—	—	—	—	—	—	(47)	
—	—	217	61	4	84	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(48)	
—	6	310	—	344	584	50	49	96	103	81	—	—	—	54	56	68	—	37	41	(49)	
—	—	25	—	67	159	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(50)	
305	320	—	—	—	—	425	565	1040	1185	320	—	50	45	955	1035	955	275	750	640		



**TABLE TWO — (Cont.)**  
**Universities — Estimated Graduations by Disciplines (1967-68)**

University or College	MISCELLANEOUS COURSES													
	occup. and physiotherapy diploma degree				Pharmacy		Physical Education		Secretarial Science		Social Work <sup>(1)</sup>		Others	
	67	68	67	68	67	68	67	68	67	68	67	68	67	68
Memorial University.....(1)	—	—	—	—	—	—	19	17	—	—	—	—	—	—
Prince of Wales College.....(2)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
St. Dunstan's University.....(3)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Acadia University.....(4)	—	—	—	—	—	—	—	—	6	11	—	—	—	—
Dalhousie University.....(5)	16	16	—	—	20	18	—	—	—	—	27 <sup>(2)</sup>	28 <sup>(2)</sup>	—	—
Mount St. Vincent University.....(6)	—	—	—	—	—	—	—	—	7	5	—	—	—	—
Nova Scotia Technical College.....(7)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
St. Francis Xavier University.....(8)	—	—	—	—	—	—	—	1	—	—	—	—	—	—
St. Mary's University.....(9)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mount Allison University.....(10)	—	—	—	—	—	—	—	—	12	18	—	—	—	—
Université de Moncton.....(11)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University of New Brunswick.....(12)	—	—	—	—	—	—	55	41	—	—	—	—	—	—
Bishop's University.....(13)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Collège Jean-de-Brébeuf.....(14)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Collège Sainte-Marie.....(15)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Loyola College.....(16)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Marianopolis College.....(17)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
McGill University.....(18)	1	—	25	45	—	—	50	52	—	—	40	40	69	83
Sir George Williams University.....(19)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Université Laval.....(20)	—	—	—	—	19	24	—	—	—	—	29	36	—	—
Université de Montréal.....(21)	60	—	—	—	50	64	25	76	—	—	—	—	—	—
Université de Sherbrooke.....(22)	—	—	—	—	—	—	6	29	—	—	—	—	58	64
Brock University.....(23)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Carleton University.....(24)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Lakehead University.....(25)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Laurentian University.....(26)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
McMaster University.....(27)	—	—	—	—	—	—	128	140	—	—	—	—	—	—
Queen's University.....(28)	—	—	—	—	—	—	33	23	—	—	—	—	—	—
Royal Military College.....(29)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
St. Patrick's College.....(30)	—	—	—	—	—	—	—	—	—	—	40	40	—	—
Trent University.....(31)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Université d'Ottawa.....(32)	—	—	—	—	—	—	46	23	—	—	—	—	—	—
University of Guelph.....(33)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University of Toronto.....(34)	83	92	—	—	76	91	59	73	—	—	90	89	116	53
University of Waterloo.....(35)	—	—	—	—	—	—	60	—	—	—	—	—	6	6
University of Western Ontario.....(36)	—	—	—	—	—	—	33	28	37	34	—	—	13	10
University of Windsor.....(37)	—	—	—	—	—	—	10	—	—	—	—	—	—	—
Waterloo Lutheran University.....(38)	—	—	—	—	—	—	—	—	—	—	26	—	—	—
York University (and Osgoode).....(39)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Brandon University.....(40)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University of Winnipeg.....(41)	—	—	—	—	—	—	—	—	—	—	—	—	9 <sup>(3)</sup>	3 <sup>(3)</sup>
University of Manitoba.....(42)	35	41	6	—	18	35	44	68	—	—	54	—	—	—
University of Sask. (Regina).....(43)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University of Sask. (Saskatoon).....(44)	—	—	17	20	65	74	22	18	—	—	—	—	—	—
University of Alberta.....(45)	22	28	—	—	32	47	88	89	—	—	—	—	1	4
University of Calgary.....(46)	—	—	—	—	—	—	21	41	—	—	—	—	1 <sup>(4)</sup>	3 <sup>(4)</sup>
Notre Dame University.....(47)	—	—	—	—	—	—	—	—	4	12	—	—	—	—
Simon Fraser University.....(48)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University of British Columbia.....(49)	—	—	9	25	23	36	53	66	—	—	68	73	—	—
University of Victoria.....(50)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Estimated Total.....	220	180	60	90	305	390	755	785	70	80	350	335	275	230

<sup>(1)</sup> Master

<sup>(2)</sup> Maritime School of Social Work

<sup>(3)</sup> Theology

<sup>(4)</sup> Archaeology

TABLE THREE

## Universities — Estimated Graduations by Disciplines (Graduate Level) (1967-68)

University or College	LANGUAGES													
	English Lang. and Literature				French Lang. and Literature				German Lang. and Literature				Latin and Classics	
	Masters		Doctors		Masters		Doctors		Masters		Doctors		Masters	
	67	68	67	68	67	68	67	68	67	68	67	68	67	68
Memorial University.....(1)	6	6	—	—	—	—	—	—	—	—	—	—	—	—
Acadia University.....(2)	—	2	—	—	—	—	—	—	—	—	—	—	—	—
Dalhousie University.....(3)	10	7	—	1	3	2	—	—	—	1	—	—	1	2
Mount St. Vincent University.....(4)	5	—	—	—	—	—	—	—	—	—	—	—	—	—
Nova Scotia Technical College.....(5)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
St. Francis Xavier University.....(6)	2	3	—	—	—	—	—	—	—	—	—	—	—	—
St. Mary's University.....(7)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mount Allison University.....(8)	1	—	—	—	—	—	—	—	—	—	—	—	—	—
Université de Moncton.....(9)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University of New Brunswick.....(10)	25	15	2	7	—	—	—	—	—	—	—	—	—	1
Macdonald College.....(11)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
McGill University.....(12)	10	13	1	1	10	15	—	—	4	5	3	4	3	3
Sir George Williams University.....(13)	3	3	—	—	—	—	—	—	—	—	—	—	—	—
Université Laval.....(14)	—	2	—	1	3	11	8	22	—	—	—	—	—	—
Université de Montréal.....(15)	9	12	2	1	15	15	1	1	—	—	—	—	2	2
Université de Sherbrooke.....(16)	2	3	—	—	4	9	—	—	—	—	—	—	1	3
Carleton University.....(17)	9	12	—	—	3	4	—	—	—	—	—	—	—	1
McMaster University.....(18)	13	10	—	1	5	3	—	—	1	—	—	—	2	6
Queen's University.....(19)	3	5	—	—	6	3	—	—	1	1	—	—	1	2
St. Patrick's College.....(20)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Université d'Ottawa.....(21)	1	2	5	5	2	2	—	—	—	—	—	—	4	6
University of Guelph.....(22)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University of Toronto.....(23)	35	40	6	8	30	35	4	6	7	9	3	4	16	21 <sup>(1)</sup>
University of Waterloo.....(24)	—	—	—	—	3	4	—	—	5	6	—	—	—	—
University of Western Ontario.....(25)	10	15	—	—	8	10	1	1	1	1	1	—	—	1
University of Windsor.....(26)	—	—	—	—	1	2	—	—	—	—	—	—	—	—
Waterloo Lutheran University.....(27)	—	—	—	—	7	6	—	—	—	—	—	—	—	—
York University.....(28)	—	10	—	—	—	—	—	—	—	—	—	—	—	—
University of Winnipeg.....(29)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University of Manitoba.....(30)	27	19	2	3	9	4	1	3	5	12	—	—	5	—
University of Sask. (Regina).....(31)	1	—	—	—	—	—	—	—	—	—	—	—	—	—
University of Sask. (Saskatoon).....(32)	4	1	—	—	2	—	—	—	1	1	—	—	—	—
University of Alberta.....(33)	28	35	4	7	—	—	—	—	—	—	—	—	3	—
University of Calgary.....(34)	10	6	—	—	—	—	—	—	—	—	—	—	—	—
Simon Fraser University.....(35)	13	9	—	—	—	—	—	—	—	—	—	—	—	—
University of British Columbia.....(36)	25	30	6	7	6	7	—	2	8	10	1	2	3 <sup>(1)</sup>	4 <sup>(1)</sup>
University of Victoria.....(37)	—	—	—	—	—	—	—	—	—	—	—	—	—	—

<sup>(1)</sup> Includes 1 Ph.D.

TABLE THREE — (Cont.)

## Universities — Estimated Graduations by Disciplines (Graduate Level) (1967-68)

University or College	LANGUAGES								ARTS							
	Modern Languages and Linguistics				Asian and Slavic Studies				Canadian Studies		Geography					
	Masters		Doctors		Masters		Doctors		Masters		Masters		Doctors			
	67	68	67	68	67	68	67	68	67	68	67	68	67	68	67	68
Memorial University.....(1)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Acadia University.....(2)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dalhousie University.....(3)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mount St. Vincent University.....(4)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Nova Scotia Technical College.....(5)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
St. Francis Xavier University.....(6)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
St. Mary's University.....(7)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mount Allison University.....(8)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Université de Moncton.....(9)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University of New Brunswick.....(10)	1	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Macdonald College.....(11)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
McGill University.....(12)	—	—	—	—	13 <sup>(7)</sup>	12 <sup>(7)</sup>	3 <sup>(7)</sup>	4 <sup>(7)</sup>	—	—	12	17	5	7	—	—
Sir George Williams University.....(13)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Université Laval.....(14)	2 <sup>(3)</sup>	5 <sup>(3)</sup>	1 <sup>(3)</sup>	3 <sup>(3)</sup>	—	—	—	—	11	21 <sup>(6)</sup>	8	18	1	3	—	—
Université de Montréal.....(15)	3 <sup>(1)</sup>	5 <sup>(1)</sup>	—	—	5 <sup>(4)</sup>	3 <sup>(4)</sup>	7 <sup>(4)</sup>	4 <sup>(4)</sup>	—	—	2	3	—	1	—	—
Université de Sherbrooke.....(16)	10	12	—	—	—	—	—	—	—	—	—	7	—	—	—	—
Carleton University.....(17)	—	2	—	—	—	—	—	—	10	10	—	1	—	—	—	—
McMaster University.....(18)	—	4	—	—	—	—	—	—	—	—	6	3	—	1	—	—
Queen's University.....(19)	—	1	—	—	—	—	—	—	—	—	—	3	—	—	—	—
St. Patrick's College.....(20)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Université d'Ottawa.....(21)	—	—	—	—	1	1	—	—	—	—	1	1	—	—	—	—
University of Guelph.....(22)	—	—	—	—	—	—	—	—	—	—	1	3	—	—	—	—
University of Toronto.....(23)	8	15	—	1	10 <sup>(5)</sup>	11 <sup>(5)</sup>	—	1 <sup>(5)</sup>	—	—	5	6	—	1	—	—
University of Waterloo.....(24)	—	—	—	—	—	—	—	—	—	—	6	8	—	—	—	—
University of Western Ontario.....(25)	—	—	—	—	—	—	—	—	—	—	10	15	—	1	—	—
University of Windsor.....(26)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Waterloo Lutheran University.....(27)	5	3	—	—	—	—	—	—	—	—	4	8	—	—	—	—
York University.....(28)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University of Winnipeg.....(29)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University of Manitoba.....(30)	—	—	—	—	3 <sup>(4)</sup>	3 <sup>(4)</sup>	—	—	—	—	22	7	—	—	—	—
University of Sask. (Regina).....(31)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University of Sask. (Saskatoon).....(32)	—	—	—	—	—	1	—	—	—	—	2	4	—	—	—	—
University of Alberta.....(33)	17	29	2	4	3 <sup>(4)</sup>	6 <sup>(4)</sup>	—	—	—	—	25	12	1	5	—	—
University of Calgary.....(34)	10	1	—	—	—	—	—	—	—	—	6	9	—	1	—	—
Simon Fraser University.....(35)	3	7	—	—	—	—	—	—	—	—	1	5	—	—	—	—
University of British Columbia.....(36)	7 <sup>(2)</sup>	11 <sup>(2)</sup>	—	—	8 <sup>(4)</sup>	7 <sup>(4)</sup>	—	—	—	—	10	12	6	7	—	—
University of Victoria.....(37)	—	4 <sup>(1)</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—

(1) Linguistics

(2) Includes 3,3 in Linguistics

(3) Includes 2,4,1,3 in Linguistics

(4) Includes 8,7 in Slavic Studies and 3,5 in Asian Studies

(5) Includes 9,10,-1 in Slavic Studies

(6) Includes 1, 3 Ph.D. in Canadian Studies

(7) Islamic Studies



TABLE THREE — (Cont.)

## Universities — Estimated Graduations by Disciplines (Graduate Level) (1967-68)

ARTS										SOCIAL SCIENCES										University
History				Fine Arts, Theatre, Creative Writing		Philosophy				Anthropology				Economics and Statistics				Public Admin.		
Masters		Doctors		Masters		Masters		Doctors		Masters		Doctors		Masters		Doctors		Masters		
67	68	67	68	67	68	67	68	67	68	67	68	67	68	67	68	67	68	67	68	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	3	—	—	—	—	(1)
—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(2)
4	4	—	—	—	—	—	1	—	—	—	—	—	—	3	3	—	—	—	—	(3)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(4)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(5)
2	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(6)
—	—	—	—	—	—	2	5	—	—	—	—	—	—	—	—	—	—	—	—	(7)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(8)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(9)
13	29	—	—	—	—	4	2	—	—	—	—	—	—	6	11	—	—	—	—	(10)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	5	2	3	2	—	—	(11)
13	18	7	10	—	—	5	7	—	—	2	3	—	—	20	25	5	7	—	—	(12)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(13)
15	24	3	7	—	—	—	—	8	16	—	—	—	—	—	1	—	—	—	—	(14)
10	10	1	2	1	2	30	35	5	7	8	10	—	—	19 <sup>(2)</sup>	29 <sup>(2)</sup>	1	1	—	—	(15)
1	5	—	—	—	—	—	2	—	—	—	—	—	—	—	5	—	—	—	35	(16)
12	13	—	—	—	—	—	2	—	—	—	—	—	—	3	7	—	—	14	20	(17)
19	17	—	4	—	—	8	7	—	—	1	1	—	—	7	10	—	—	—	—	(18)
9	7	—	2	—	—	1	2	—	—	—	—	—	—	7	10	3	4	—	—	(19)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(20)
8	9	—	—	—	—	—	—	—	—	—	—	—	—	7	9	1	1	—	—	(21)
8	10	—	—	—	—	1	3	—	—	—	—	—	—	—	2	—	—	—	—	(22)
55	62	6	9	10	12	35	38	10	12	10	15	—	1	30	35	8	10	—	—	(23)
13	13	—	—	—	—	5	6	1	2	—	—	—	—	—	—	—	—	—	—	(24)
10	15	—	3	—	—	5	6	—	—	—	—	—	—	20	25	—	1	—	—	(25)
12	16	—	—	12	17	2	3	—	—	—	—	—	—	3	4	—	—	—	—	(26)
—	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(27)
—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	(28)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(29)
21	9	2	2	—	—	5	4	—	—	6	4	—	—	29 <sup>(3)</sup>	10 <sup>(3)</sup>	—	—	—	—	(30)
2	1	—	—	—	—	—	—	—	—	—	—	—	—	4	—	—	—	—	—	(31)
5	4	—	—	1	1	—	—	—	—	—	—	—	—	2	2	—	—	—	—	(32)
8	8	—	4	—	—	8	12	2	5	—	—	—	—	5	5	2	1	—	—	(33)
10	3	—	—	—	—	7	2	—	—	9 <sup>(1)</sup>	4 <sup>(1)</sup>	—	4 <sup>(1)</sup>	10	6	—	—	—	—	(34)
4	2	—	—	—	—	—	—	—	—	—	—	—	—	5	1	—	—	—	—	(35)
7	11	2	7	4	12	6	7	2	2	5	5	2	3	10	13	2	3	—	—	(36)
—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(37)

(1) Includes 9, 2, — 4 in Archeology

(2) Includes 13, 18 in Industrial Relations

(3) Includes 7, 8 in Statistics

TABLE THREE — (Cont.)

## Universities — Estimated Graduations by Disciplines (Graduate Level) (1967-68)

University or College	SOCIAL SCIENCES														BIOLO- GICAL  Food Chemistry, Home Economics
	Political Science				Psychology				Sociology						
	Masters		Doctors		Masters		Doctors		Masters		Doctors		Masters		
	67	68	67	68	67	68	67	68	67	68	67	68	67	68	
Memorial University.....(1)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Acadia University.....(2)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Dalhousie University.....(3)	3	6	—	—	10	10	—	4	—	1	—	—	—	—	
Mount St. Vincent University.....(4)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Nova Scotia Technical College.....(5)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
St. Francis Xavier University.....(6)	—	—	—	—	10 <sup>(1)</sup>	—	—	—	—	—	—	—	—	—	
St. Mary's University.....(7)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Mount Allison University.....(8)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Université de Moncton.....(9)	—	—	—	—	19 <sup>(2)</sup>	29 <sup>(2)</sup>	—	—	—	—	—	—	—	—	
University of New Brunswick.....(10)	—	—	—	—	4	5	—	—	5	4	—	—	—	—	
Macdonald College.....(11)	—	—	—	—	—	—	—	—	—	—	—	—	1	1	
McGill University.....(12)	10	15	1	2	20	25	8	9	6	8	—	—	—	—	
Sir George Williams University.....(13)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Université Laval.....(14)	—	—	1	1	—	—	—	1	—	—	—	2	—	—	
Université de Montréal.....(15)	7	12	—	—	50	55	2	3	10	10	1	1	3	5	
Université de Sherbrooke.....(16)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Carleton University.....(17)	16 <sup>(5)</sup>	27 <sup>(5)</sup>	3	7	12	14	—	5	12	13	—	—	—	—	
McMaster University.....(18)	8	8	—	—	9	6	—	4	4	4	—	—	—	—	
Queen's University.....(19)	5	5	—	2	7	8	3	4	—	—	—	—	—	—	
St. Patrick's College.....(20)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Université d'Ottawa.....(21)	—	—	—	—	7	8	7	7	—	—	—	—	—	—	
University of Guelph.....(22)	—	—	—	—	3	7	—	—	1	3	—	—	2	4	
University of Toronto.....(23)	10	12	2	4	15	20	10	12	10	15	2	4	5	7	
University of Waterloo.....(24)	—	—	—	—	15	20	6	8	—	1	—	—	—	—	
University of Western Ontario.....(25)	10	13	—	—	20	25	7	9	—	1	—	—	—	—	
University of Windsor.....(26)	3	4	—	—	12	14	6	8	3	4	—	—	—	—	
Waterloo Lutheran University.....(27)	—	—	—	—	2	7	—	—	—	—	—	—	—	—	
York University.....(28)	—	—	—	—	5	10	—	1	—	4	—	—	—	—	
University of Winnipeg.....(29)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
University of Manitoba.....(30)	10	5	—	—	22	14	1	2	7	5	—	—	—	3	
University of Sask. (Regina).....(31)	—	—	—	—	4	2	—	—	1	2	—	—	—	—	
University of Sask. (Saskatoon).....(32)	—	1	—	—	6	1	—	—	3	1	—	—	—	—	
University of Alberta.....(33)	6	13	1	5	18	17	3	13	4 <sup>(3)</sup>	1 <sup>(3)</sup>	—	—	—	—	
University of Calgary.....(34)	5	2	—	—	20	11	—	—	13	6	—	—	—	—	
Simon Fraser University.....(35)	—	—	—	—	1	1	—	4	7 <sup>(4)</sup>	2 <sup>(4)</sup>	2 <sup>(4)</sup>	6 <sup>(4)</sup>	—	—	
University of British Columbia.....(36)	5	6	1	—	10	8	6	4	7	7	1	2	—	—	
University of Victoria.....(37)	—	—	—	—	1	4	—	1	—	—	—	—	—	—	

(1) Guidance

(2) Includes 5, 14 in Guidance

(3) Sociology and Anthropology

(4) Sociology, Anthropology and Political Science

(5) Includes International Affairs

TABLE THREE — (Cont.)

## Universities — Estimated Graduations by Disciplines (Graduate Level) (1967-68)

SCIENCES																				University	
Bacteriology and Microbiology				Biochemistry and Biophysics				Biological Sciences				Botany				Physiology					
Masters		Doctors		Masters		Doctors		Masters		Doctors		Masters		Doctors		Masters		Doctors			
67	68	67	68	67	68	67	68	67	68	67	68	67	68	67	68	67	68	67	68		
—	—	—	—	—	—	—	—	3	5	—	—	—	—	—	—	—	—	—	—	(1)	
—	—	—	—	—	—	—	—	6	4	—	—	—	—	—	—	—	—	—	—	(2)	
—	1	—	1	3	3	—	4	5	4	1	2	—	—	—	—	—	1	3	2	3	(3)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(4)	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(5)	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(6)	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(7)	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(8)	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(9)	
—	—	—	—	—	—	—	—	12	4	—	—	—	—	—	—	—	—	—	—	(10)	
5	5	7	8	—	—	—	—	7	6	3	6	—	—	—	—	—	—	—	—	(11)	
2	3	2	3	10	15	15	15	3 <sup>(1)</sup>	4 <sup>(1)</sup>	3 <sup>(1)</sup>	4 <sup>(1)</sup>	5	5	1	2	3	4	3	4	(12)	
—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	(13)	
1	3	—	—	5	10	6	10	5	8	1	2	—	—	—	—	4	5	1	5	(14)	
3	4	—	—	3	3	1	1	6	10	2	3	—	—	—	—	3	5	1	2	(15)	
—	—	—	—	—	—	—	—	1	9	—	1	—	—	—	—	—	—	—	—	(16)	
—	—	—	—	—	—	—	—	11	5	2	—	—	—	—	—	—	—	—	—	(17)	
—	—	—	—	—	4	—	—	4	8	4	2	—	—	—	—	—	—	—	—	(18)	
—	—	—	—	2	2	1	1	12	10	5	3	—	—	—	—	3	2	1	1	(19)	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(20)	
—	—	—	—	—	—	—	—	1	2	1	1	—	—	—	—	—	—	—	—	(21)	
16	18	3	5	3	—	2	1	—	—	—	—	8	10	1	2	3	5	1	2	(22)	
—	—	—	—	5	7	3	5	—	—	—	—	5	7	5	6	1	1	1	2	(23)	
—	—	—	—	—	—	—	—	5	7	2	3	—	—	—	—	—	—	—	—	(24)	
1	1	—	1	2	2	5	7	—	—	—	—	2	3	3	4	5	5	1	1	(25)	
—	—	—	—	—	—	—	—	5	5	1	1	—	—	—	—	—	—	—	—	(26)	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(27)	
—	—	—	—	—	—	—	—	1	2	—	—	—	—	—	—	—	—	—	—	(28)	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(29)	
14	8	7	1	8	2	—	4	—	3	—	—	5	2	1	1	1	—	—	—	(30)	
—	—	—	—	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	(31)	
2	—	—	—	1	1	—	—	10	10	—	—	—	—	—	—	2	—	—	—	(32)	
3	3	—	2	2	3	5	9	14 <sup>(2)</sup>	5 <sup>(2)</sup>	9 <sup>(2)</sup>	1 <sup>(2)</sup>	4	2	2	2	—	—	—	—	(33)	
—	—	—	—	—	—	—	—	11	2	1	—	—	—	—	—	—	—	—	—	(34)	
—	—	—	—	—	—	—	—	4	1	1	3	—	—	—	—	—	—	—	—	(35)	
3	3	1	—	—	3	4	6	1 <sup>(1)</sup>	1 <sup>(1)</sup>	—	1 <sup>(1)</sup>	6	7	6	7	—	1	—	—	(36)	
—	—	—	—	—	—	—	—	1	3	—	—	—	—	—	—	—	—	—	—	(37)	

<sup>(1)</sup> Genetics<sup>(2)</sup> Includes 5, 3, 4, 1 in Genetics



TABLE THREE — (Cont.)

## Universities — Estimated Graduations by Disciplines (Graduate Level) (1967-68)

University or College	BIOLOGICAL SCIENCES								OTHER SCIENCES							
	Zoology				Astronomy				Chemistry				Computer Science			
	Masters		Doctors		Masters		Doctors		Masters		Doctors		Masters			
	67	68	67	68	67	68	67	68	67	68	67	68	67	68		
Memorial University.....(1)	—	—	—	—	—	—	—	—	2	6	—	—	—	—		
Acadia University.....(2)	—	—	—	—	—	—	—	—	3	—	—	—	—	—		
Dalhousie University.....(3)	1	—	—	—	—	—	—	—	6	4	5	8	—	—		
Mount St. Vincent University.....(4)	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
Nova Scotia Technical College.....(5)	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
St. Francis Xavier University.....(6)	—	—	—	—	—	—	—	—	1	7	—	—	—	—		
St. Mary's University.....(7)	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
Mount Allison University.....(8)	—	—	—	—	—	—	—	—	2	1	—	—	—	—		
Université de Moncton.....(9)	—	—	—	—	—	—	—	—	4	4	—	—	—	—		
University of New Brunswick.....(10)	—	—	—	—	—	—	—	—	4	3	9	7	—	—		
Macdonald College.....(11)	—	—	—	—	—	—	—	—	2	2	2	1	—	—		
McGill University.....(12)	4	6	3	3	—	—	—	—	5	6	20	25	2	3		
Sir George Williams University.....(13)	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
Université Laval.....(14)	—	—	—	—	—	—	—	—	4	7	8	12	—	—		
Université de Montréal.....(15)	—	—	—	—	—	—	—	—	16	20	10	13	2	4		
Université de Sherbrooke.....(16)	—	—	—	—	—	—	—	—	2	3	—	—	—	—		
Carleton University.....(17)	—	—	—	—	—	—	—	—	12	9	—	—	—	—		
McMaster University.....(18)	—	—	—	—	—	—	—	—	4	5	7	13	—	—		
Queen's University.....(19)	—	—	—	—	—	—	—	—	8	8	5	7	—	—		
St. Patrick's College.....(20)	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
Université d'Ottawa.....(21)	—	—	—	—	—	—	—	—	—	2	4	4	—	—		
University of Guelph.....(22)	18	22	1	4	—	—	—	—	9	9	—	1	—	—		
University of Toronto.....(23)	20	25	8	10	5	7	2	4	25	32	20	25	10	15		
University of Waterloo.....(24)	—	—	—	—	—	—	—	—	8	10	2	3	—	—		
University of Western Ontario.....(25)	8	8	5	7	1	1	—	—	3	4	10	12	1	1		
University of Windsor.....(26)	—	—	—	—	—	—	—	—	5	7	6	7	—	—		
Waterloo Lutheran University.....(27)	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
York University.....(28)	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
University of Winnipeg.....(29)	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
University of Manitoba.....(30)	9	12	—	2	—	—	—	—	13	8	11	7	10	11		
University of Sask. (Regina).....(31)	—	—	—	—	—	—	—	—	8	1	—	—	—	—		
University of Sask. (Saskatoon).....(32)	—	—	—	—	—	—	—	—	7	3	—	—	—	—		
University of Alberta.....(33)	17	15	8	9	—	—	—	—	5	5	25	30	4	5		
University of Calgary.....(34)	—	—	—	—	—	—	—	—	13	11	5	6	—	—		
Simon Fraser University.....(35)	—	—	—	—	—	—	—	—	3	8	3	2	—	—		
University of British Columbia.....(36)	28	33	15	20	—	—	—	—	10	14	29	33	1	1		
University of Victoria.....(37)	—	—	—	—	—	—	—	—	3	2	—	1	—	—		

TABLE THREE — (Cont.)

## Universities — Estimated Graduations by Disciplines (Graduate Level) (1967-68)

OTHER SCIENCES												ENGINEERING								University
Geology				Geophysics and Oceanography				Mathematics				Physics				Aerospace and Aeronautical				
Masters		Doctors		Masters		Doctors		Masters		Doctors		Masters		Doctors		Masters		Doctors		
67	68	67	68	67	68	67	68	67	68	67	68	67	68	67	68	67	68	67	68	
3	4	—	—	—	—	—	—	—	3	—	—	5	3	—	—	—	—	—	—	(1)
—	1	—	—	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	(2)
—	2	—	2	3 <sup>(1)</sup>	4 <sup>(1)</sup>	2 <sup>(1)</sup>	4 <sup>(1)</sup>	4	1	—	1	7	10	—	3	—	—	—	—	(3)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(4)
—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	(5)
—	—	—	—	—	—	—	—	2	—	—	—	—	1	—	—	—	—	—	—	(6)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(7)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(8)
—	—	—	—	—	—	—	—	—	—	—	—	4	4	—	—	—	—	—	—	(9)
4	8	—	5	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	(10)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(11)
10	12	8	10	2 <sup>(1)</sup>	3 <sup>(1)</sup>	1 <sup>(1)</sup>	2 <sup>(1)</sup>	15	20	5	10	27 <sup>(2)</sup>	30 <sup>(2)</sup>	10 <sup>(2)</sup>	13 <sup>(2)</sup>	1 <sup>(3)</sup>	3 <sup>(3)</sup>	1 <sup>(3)</sup>	2 <sup>(3)</sup>	(12)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(13)
—	1	2	3	—	—	—	—	2	4	3	4	6	17	2	4	—	—	—	—	(14)
3	5	—	—	—	—	—	—	16	20	4	6	9	12	3	5	—	—	—	—	(15)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(16)
2	—	—	3	—	—	—	—	4	7	—	1	4	5	—	6	2	3	—	—	(17)
1	5	—	5	—	—	—	—	6	5	3	4	12	6	15	8	—	—	—	—	(18)
2	3	3	3	—	—	—	—	4	7	3	4	5	6	—	1	—	—	—	—	(19)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(20)
2	2	1	1	—	—	—	—	6	8	—	9	—	—	—	—	—	—	—	—	(21)
—	—	—	—	—	—	—	—	—	—	1	—	3	2	—	—	—	—	—	—	(22)
5	7	4	5	—	—	—	—	25	30	12	15	30	35	12	15	13	16	6	8	(23)
—	—	—	—	—	—	—	—	45	50	6	8	6	9	2	2	—	—	—	—	(24)
3	4	1	1	3	3	1	2	10	15	3	4	5	8	5	6	—	—	—	—	(25)
—	—	—	—	—	—	—	—	2	2	4	4	4	5	5	6	—	—	—	—	(26)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(27)
—	—	—	—	—	—	—	—	—	—	—	—	2	2	6	5	1	2	5	6	(28)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(29)
19	5	5	3	—	—	—	—	6	4	—	3	13	6	5	18	—	—	—	—	(30)
—	—	—	—	—	—	—	—	—	1	—	—	—	5	—	—	—	—	—	—	(31)
12	4	—	—	—	—	—	—	6	4	—	—	10	4	—	—	—	—	—	—	(32)
11	12	8	3	3	—	2	4	10	6	7	5	15	6	12	18	—	—	—	—	(33)
14	3	—	—	—	—	—	—	9	6	2	4	13	10	9	2	—	—	—	—	(34)
—	—	—	—	—	—	—	—	—	3	1	1	3	—	4	7	—	—	—	—	(35)
6	5	6	7	7	5	4	4	12	15	6	10	14	17	28	30	—	—	—	—	(36)
—	—	—	—	—	—	—	—	—	—	—	—	6	3	—	—	—	—	—	—	(37)

<sup>(1)</sup> Oceanography<sup>(2)</sup> Includes 15, 15, 3, 3, in Meteorology<sup>(3)</sup> Space Research Institute

TABLE THREE — (Cont.)

## Universities — Estimated Graduations by Disciplines (Graduate Level) (1967-68)

University or College	ENGINEERING AND APPLIED SCIENCES													
	Chemical				Civil				Electrical				Geology	
	Masters		Doctors		Masters		Doctors		Masters		Doctors		Masters	
	67	68	67	68	67	68	67	68	67	68	67	68	67	68
Memorial University.....(1)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Acadia University.....(2)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dalhousie University.....(3)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mount St. Vincent University.....(4)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Nova Scotia Technical College.....(5)	1	7	1	1	4	10	2	4	12	13	—	2	—	—
St. Francis Xavier University.....(6)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
St. Mary's University.....(7)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mount Allison University.....(8)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Université de Moncton.....(9)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University of New Brunswick.....(10)	16	5	4	1	11	14	—	—	14	10	1	4	—	—
Macdonald College.....(11)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
McGill University.....(12)	5	8	5	6	15	20	1	1	6	8	4	6	—	—
Sir George Williams University.....(13)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Université Laval.....(14)	10	12	—	1	12	16	1	1	20	15	2	5	—	—
Université de Montréal.....(15)	2	2	—	1	6	10	—	—	6	8	1	1	1	1
Université de Sherbrooke.....(16)	—	—	—	—	—	2	—	—	—	8	—	—	—	—
Carleton University.....(17)	—	—	—	1	2	3	2	2	10	15	3	5	—	—
McMaster University.....(18)	10	4	3	3	3	3	—	—	6	7	—	1	—	—
Queen's University.....(19)	3	2	—	2	6	8	1	2	3	4	—	2	2	2
St. Patrick's College.....(20)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Université d'Ottawa.....(21)	4	5	2	2	—	—	—	—	4	4	1	1	—	—
University of Guelph.....(22)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University of Toronto.....(23)	12	15	9	12	20	22	—	1	30	35	8	10	2	4
University of Waterloo.....(24)	8	10	2	3	25	35	8	10	8	10	2	3	—	—
University of Western Ontario.....(25)	3	4	—	—	4	4	—	—	1	2	—	—	—	—
University of Windsor.....(26)	5	6	1	2	8	8	3	4	4	6	2	3	—	—
Waterloo Lutheran University.....(27)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
York University.....(28)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University of Winnipeg.....(29)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University of Manitoba.....(30)	—	—	—	—	31	9	—	—	26	8	—	—	—	—
University of Sask. (Regina).....(31)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University of Sask. (Saskatoon).....(32)	8	1	4	1	8	8	—	—	7	4	—	3	—	—
University of Alberta.....(33)	5	—	1	3	15	20	2	2	15	20	—	2	—	—
University of Calgary.....(34)	5	1	—	—	16	3	3	3	2	—	—	—	—	—
Simon Fraser University.....(35)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University of British Columbia.....(36)	3	4	2	3	8	8	2	3	14	15	6	8	1	1
University of Victoria.....(37)	—	—	—	—	—	—	—	—	—	—	—	—	—	—



TABLE THREE — (Cont.)

## Universities — Estimated Graduations by Disciplines (Graduate Level) (1967-68)

## ENGINEERING AND APPLIED SCIENCES

Mechanical				Metallurgical and Metallurgy				Mining				Survey				Others				Architec- ture				University
Masters		Doctors		Masters		Doctors		Masters		Doctors		Masters		Masters		Doctors		Masters						
67	68	67	68	67	68	67	68	67	68	67	68	67	68	67	68	67	68	67	68					
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(1)				
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(2)				
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(3)				
1	10	—	1	—	1	—	2	1	—	—	—	—	—	—	—	—	—	—	—	(4)				
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(5)				
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(6)				
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(7)				
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(8)				
2	—	—	—	—	—	—	—	—	—	—	—	3	4	2 <sup>(3)</sup>	8 <sup>(3)</sup>	—	—	—	—	(9)				
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(10)				
8	12	8	8	4	5	2	3	5	7	1	2	—	—	—	3 <sup>(1)</sup>	—	—	—	—	(11)				
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5	(12)				
5	9	2	3	4	6	2	3	—	—	—	—	4	9	—	—	—	—	—	—	(13)				
3	5	—	1	2	3	—	1	2	3	—	—	—	—	—	2 <sup>(3)</sup>	2 <sup>(3)</sup>	—	—	—	(14)				
—	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	(15)				
5	5	2	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(16)				
7	6	—	—	5	9	—	4	—	—	—	—	—	—	—	1	2	1	—	—	(17)				
4	4	1	—	2	3	—	1	4	2	—	1	—	—	—	—	—	—	—	—	(18)				
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(19)				
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(20)				
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(21)				
14	17	2	4	7	9	3	6	—	—	—	—	—	—	—	18 <sup>(1)</sup>	18 <sup>(1)</sup>	—	—	1 <sup>(1)</sup>	(22)				
6	10	3	3	—	—	—	—	—	—	—	—	—	—	—	10 <sup>(2)</sup>	12 <sup>(2)</sup>	—	—	1 <sup>(2)</sup>	(23)				
4	4	—	—	1	1	—	—	—	—	—	—	—	—	—	6 <sup>(5)</sup>	9 <sup>(5)</sup>	—	—	1 <sup>(5)</sup>	(24)				
3	4	1	1	—	—	—	—	—	—	—	—	—	—	—	1 <sup>(6)</sup>	3 <sup>(6)</sup>	—	—	1 <sup>(6)</sup>	(25)				
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(26)				
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(27)				
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(28)				
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(29)				
5	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	(30)				
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(31)				
21	1	4	7	—	—	—	—	—	—	—	—	—	—	—	8 <sup>(1)</sup>	3 <sup>(1)</sup>	3 <sup>(1)</sup>	1 <sup>(1)</sup>	—	(32)				
5	11	2	—	3	6	1	3	5 <sup>(4)</sup>	1 <sup>(4)</sup>	1 <sup>(4)</sup>	—	—	—	—	2 <sup>(1)</sup>	3 <sup>(1)</sup>	1 <sup>(1)</sup>	—	—	(33)				
5	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(34)				
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(35)				
4	3	1	6	5	6	5	4	2	3	—	—	—	—	—	3 <sup>(3)</sup>	2 <sup>(3)</sup>	1 <sup>(3)</sup>	2 <sup>(3)</sup>	1	(36)				
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(37)				

(1) Agricultural

(2) Industrial

(3) Engineering Physics

(4) Includes 4, —, 1, — in Petroleum

(5) Design, Management and Systems Engineering

(6) Engineering Materials

TABLE THREE — (Cont.)

## Universities — Estimated Graduations by Disciplines (Graduate Level) (1967-68)

University or College	MISCELLANEOUS															
	Forestry Engineering and Forestry				Agriculture				Commerce and Bus. Admin.				Education			
	Masters		Doctors		Masters		Doctors		Masters		Masters		Doctors			
	67	68	67	68	67	68	67	68	67	68	67	68	67	68		
Memorial University.....(1)	—	—	—	—	—	—	—	—	—	—	—	3	—	—		
Acadia University.....(2)	—	—	—	—	—	—	—	—	—	—	3	—	—	—		
Dalhousie University.....(3)	—	—	—	—	—	—	—	—	—	—	8	4	—	—		
Mount St. Vincent University.....(4)	—	—	—	—	—	—	—	—	—	—	3	—	—	—		
Nova Scotia Technical College.....(5)	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
St. Francis Xavier University.....(6)	—	—	—	—	—	—	—	—	—	—	10	11	—	—		
St. Mary's University.....(7)	—	—	—	—	—	—	—	—	—	—	9	9	—	—		
Mount Allison University.....(8)	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
Université de Moncton.....(9)	—	—	—	—	—	—	—	—	4	8	—	—	—	—		
University of New Brunswick.....(10)	4	8	—	—	—	—	—	—	—	—	8	4	—	—		
Macdonald College.....(11)	—	—	—	—	14	23	8	8	—	—	—	—	—	—		
McGill University.....(12)	—	—	—	—	—	—	—	—	40	50	40	40	—	2		
Sir George Williams University.....(13)	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
Université Laval.....(14)	10	14	2	4	12	19	—	1	225	230	25	30	1	3		
Université de Montréal.....(15)	—	—	—	—	—	—	—	—	5	8	3	3	—	—		
Université de Sherbrooke.....(16)	—	—	—	—	—	—	—	—	59	61	25	30	—	—		
Carleton University.....(17)	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
McMaster University.....(18)	—	—	—	—	—	—	—	—	35	40	—	—	—	—		
Queen's University.....(19)	—	—	—	—	—	—	—	—	33	37	—	—	—	—		
St. Patrick's College.....(20)	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
Université d'Ottawa.....(21)	—	—	—	—	—	—	—	—	—	—	17	20	5	5		
University of Guelph.....(22)	—	—	—	—	90	102	2	6	—	—	—	—	—	—		
University of Toronto.....(23)	5	7	—	—	—	—	—	—	55	60	180	200	5	8		
University of Waterloo.....(24)	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
University of Western Ontario.....(25)	—	—	—	—	—	—	—	—	115	120	—	—	—	—		
University of Windsor.....(26)	—	—	—	—	—	—	—	—	7	11	—	—	—	—		
Waterloo Lutheran University.....(27)	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
York University.....(28)	—	—	—	—	—	—	—	—	23	50	—	—	—	—		
University of Winnipeg.....(29)	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
University of Manitoba.....(30)	—	—	—	—	41	21	17	14	—	—	19	14	—	—		
University of Sask. (Regina).....(31)	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
University of Sask. (Saskatoon).....(32)	—	—	—	—	21	12	6	7	4	2	11	1	—	—		
University of Alberta.....(33)	—	—	—	—	13	11	12	12	13	20	78	57	34	27		
University of Calgary.....(34)	—	—	—	—	—	—	—	—	—	—	48	26	1	—		
Simon Fraser University.....(35)	—	—	—	—	—	—	—	—	—	—	1	3	—	—		
University of British Columbia.....(36)	4	8	5	6	13	15	6	7	22	27	80	88	—	—		
University of Victoria.....(37)	—	—	—	—	—	—	—	—	—	—	—	5	—	—		

TABLE THREE — (Conc.)

## Universities—Estimated Graduations by Disciplines (Graduate Level) (1967-68)

MISCELLANEOUS																			University	
Law		Medical Sciences and Dentistry				Music		Nursing and Social Work		Pharmacy		Physical Education		Theology Religious Science				Town and Regional Planning		
Masters		Masters	Doctors		Masters				Masters		Masters		Masters		Doctors		Masters			
67	68	67	68	67	68	67	68	67	68	67	68	67	68	67	68	67	68	67		68
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(1)
1	2	3	5	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	(2)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(3)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(4)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(5)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(6)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(7)
—	—	—	—	—	—	—	—	1 <sup>(4)</sup>	1 <sup>(4)</sup>	—	—	—	—	—	—	—	—	—	—	(8)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(9)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(10)
5	10	50	60	30 <sup>(11)</sup>	40 <sup>(11)</sup>	—	—	5 <sup>(4)</sup>	10 <sup>(4)</sup>	—	—	—	—	4 <sup>(8)</sup>	5 <sup>(8)</sup>	2	2	2	5	(11)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(12)
10	12	—	—	—	—	1 <sup>(1)</sup>	2 <sup>(1)</sup>	3 <sup>(4)</sup>	5 <sup>(4)</sup>	—	—	—	—	—	—	2	4	—	—	(13)
5	7	13	17	5	5	5	6 <sup>(2)</sup>	20 <sup>(1)</sup>	25 <sup>(1)</sup>	5 <sup>(2)</sup>	8 <sup>(6)</sup>	—	—	60 <sup>(9)</sup>	75 <sup>(9)</sup>	4	4	5	8	(14)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(15)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(16)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	3 <sup>(10)</sup>	5 <sup>(10)</sup>	1 <sup>(10)</sup>	3 <sup>(10)</sup>	—	—	(17)
—	—	6	5	—	1	—	—	—	—	2	1	—	—	—	—	—	—	—	—	(18)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(19)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	11	11	—	—	—	—	(20)
—	—	18	19	4	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(21)
1	1	20	23	25	30	3 <sup>(3)</sup>	5 <sup>(3)</sup>	1 <sup>(5)</sup>	1 <sup>(5)</sup>	6	8	—	—	—	—	—	—	6	10	(22)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(23)
—	—	—	—	—	—	—	—	3 <sup>(4)</sup>	3 <sup>(4)</sup>	—	—	4	5	—	—	—	—	—	—	(24)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(25)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(26)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(27)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(28)
1	—	7	4	6	5	—	—	—	—	3	3	—	—	—	—	—	—	6	9	(29)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(30)
—	—	15	2	—	1	—	—	—	—	4	5 <sup>(2)</sup>	—	2	—	—	—	—	—	—	(31)
—	—	5	3	2	5	—	—	—	—	3 <sup>(2)</sup>	8 <sup>(6)</sup>	15	15	—	—	—	—	—	—	(32)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(33)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(34)
—	1	1	1	2	2	2	1	—	—	2	2	6	7	—	—	—	—	12	14	(35)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(36)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(37)

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(3) Includes 1, 2 Doctors

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(10) Religion

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